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The Psychology of Consciousness

BY

C. DALY KING, M.A.

WITH AN INTRODUCTION BY

Dr WILLIAM M. MARSTON

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TO MY
FATHER AND MOTHER
WHOSE GENEROSITY MADE
POSSIBLE THE WRITING OF
THIS BOOK

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INTRODUCTION

by

WILLIAM MOULTON MARSTON

This book accomplishes a purpose. And the purpose is well worth while for modern psychology. The author may not agree with me as to what this purpose is, but he has accomplished it none the less. *The Psychology of Consciousness* points up as well as down, forward as well as backward. It calls to the attention of thinking readers a little-recognized fact: namely, the fact that consciousness is not merely an accidental by-product of human life but rather constitutes the chief goal of living. " In fact," asserts Mr. King, " the degree of completeness of consciousness, as distinguished sharply from happiness and similar criteria, is the one valid measure of normalcy that we possess." No point of view could be more wholesome than this. And no point of view could be more radically—yet at the same time objectively—opposed to the childish fearsomeness with which a majority of American psychologists flee all discussion of the consciousness problem.

What is consciousness? Until we know the answer to that question we cannot hope to direct the developmental destinies of humanity wherein consciousness alone plays a self-controlling part. And how do our current psychologies meet the issue? Behaviorism denies the existence of consciousness. Other objective psychologies, of biological bias, regard consciousness as something that cannot be dealt with definitely, and they therefore avoid the topic as much as possible.

Psychoanalysts talk freely about several divisions of consciousness, such as the sub-conscious, the fore-conscious, and the unconscious; but they persistently evade direct inquiry into the nature of the phenomenon itself, just as they evade the scientific approach to other psychological problems. To assume that the nature of consciousness is self-evident is precisely as unproductive as to argue that the non-existence of consciousness is demonstrated by the behaviorist's inability to kick it.

Mr. King's book expounds and ably criticizes these and many other views of consciousness. In workmanlike manner he examines both the premises and conclusions of practically all existing theories, selecting and rejecting in accordance with his own criteria. Many readers, like myself, will not find themselves in agreement with the adequacy of all Mr. King's bases of judgment. But however much one may quarrel with the author's standards of value, it is necessary to admit that the yardstick applied throughout the present volume is consistent, logical and precise. One suspects, at times, that Mr. King longs to become a mystic; but he manfully resists temptation and clings forcefully to the objective view-point. And above everything else this author proves himself fearless: he grasps every controversy firmly with both hands, and drags its obscurities and confusions forth, into the light of pitiless discussion. What a relief is such an attitude from the pharasaical sophistries of academic psychology!

The late Hugo Munsterberg, in the book which represents the culmination of a lifetime's analytical thought, proposed a division of general psychology into two fundamental parts: 'causal' and 'purposive'. Causal psychology was the ordinary kind, comparable in its method to other physical sciences; the purpose of causal psychology was to trace psychological effects to physiological causes. Purposive psychology, on the other hand, was to be something altogether different: "the same inner life," according to Munsterberg, "seen from a different standpoint". The one was objective, the other subjective; the first "a psychology of mental states, the other a psychology of the self"; "explanatory psychology as against interpretative psychology". Munsterberg's idea, in brief, was simply that psychology must look forward as well as backward, that it must explain its conscious events in terms of their purposes as well as in light of their physical causes.

As the world wags, modern psychology has not followed the dual division suggested by Munsterberg. But recent conversations with former fellow-students have assured me that I was not the only member of Munsterberg's Seminar at Harvard who was enduringly impressed with the intellectual value of the purposive idea. If, for example, one could be definitely assured that consciousness had been satisfactorily traced to its physical causes, there would still remain to be understood the inner purpose, or goal, or forward-pointing aspect of conscious experience. Consciousness, to control itself, must not only know its own derivations in the physical past, it must also make shrewd speculations as to its potentialities in the physical future. And this is precisely what the present book attempts to do, under the guise—perhaps I should say device, for not the slightest intellectual dishonesty is intended—of forming a logical hypothesis with regard to a super-physical, knowing but unknowable consciousness, of which the physically recognizable conscious elements are mere contents. Personally, I find myself unable to become conscious of Mr. King's concept in its ultra-experiential aspects. But that, no doubt, is because I have not as yet followed the technique intriguingly laid down in the latter chapters of this book. At all events, I am convinced that the author has performed a rare service to the present day and generation by reminding us emphatically that physiological explanations of consciousness are the groundwork, but not the superstructure, of psychology's solution of the entire problem.

Nor is one obliged to follow the same logical path to arrive at an hypothesis very similar to that put forward by Mr. King. Another route may lead to the same goal. For example, it is my own view that material consciousness, sensory, intellectual and emotional, is a special kind of physical energy, generated according to specific laws at the synapses of the central nervous system. Now if we assume, as does the author of the present book, that increasing one's " active awareness " is the most important goal of existence, the practical prescription for thus increasing it must consist, according to my own views, in continually exercising one's perceptions, thoughts, and emotions. Only by such systematic, conscious activity can the number and variety of synaptic connections be increased, and new consciousness be added to old. Exercise of consciousness, like exercise of the muscles, is the only way to increase capacity. With this conclusion, I take it, the author would agree, albeit he disagrees substantially with my premises.

Again, if consciousness be physical energy, more complex and potent that nerve trunk energy, yet dependent for its very existence upon the prior occurrence of simple nerve excitations, it seems scientifically reasonable to suppose that there may be, also, a super-material consciousness (in the same sense that cosmic rays are super-material), which depends for its existence upon the prior occurrence of the consciousness-energy we know about. That we have at present no definite proof of such a super-physical consciousness is no reason to suppose, as the present author rightly points out, that it does not exist.

The hypothesis thus arrived at seems essentially identical with the passive ' I ', or self logically expounded by Mr. King, which can only become psychologically active and not passive " to the extent to which through conscious effort ' I ' succeed in being accurately aware of the current operations of my body ". Perhaps my own suggestion changes the author's super-physical 'I' from a wholly 'passive' actuality to a potentiality; but with that single exception, it seems to me that the conceptual end, arrived at by different approaches, is identical. Whether we postulate a super-physical consciousness on grounds of logical necessity, as does the author of this book, or whether we assume the existence of such a consciousness on grounds of factual probability, as I do myself, the practical implication for human life remains the same: increasing consciousness is building a scientifically tenable path to self-mastery and freedom from environment.

THE PSYCHOLOGY OF CONSCIOUSNESS

FOREWORD

THE SIGNIFICANCE OF THE QUESTION OF 'I'

At the very outset it is necessary to secure assent for the following proposition: that as human beings we are seriously interested in the world around us, in ourselves, and in that particular relation between the world and ourselves which constitutes knowledge. Moreover, we shall assume that, intellectually, we are at last coming of age and that our attitude toward life is the adolescent one of questioning.

Already, it will be seen, the appeal of our discussion has been considerably limited, since two large classes of people are obviously excluded. Modesty hesitates to address those to whom Truth already stands naked and revealed, for whom all questions, having long since been answered, offer no further delight. And a measure of wisdom suggests that an appeal to the sub-adolescent would be equally out of place; for them no questions exist, since it is plain that the sun rises in the morning and sets in the evening, that the earth is round and life quite satisfactory.

But even with our numbers so drastically reduced, no doubt a small band will remain. Do not many eagerly investigate the doctrines of modern physics and the astronomical universe as recently revealed? Questioning there is, but are our questions rightly directed?

Some of our early certainty has surely evaporated.

What once seemed in prospect to be a problem in simple arithmetic has shown a lamentable disposition toward resembling the more obscure Theory of Probabilities. To our first plain (and thus comfortable) questions there have appeared, not the simple and easy answers we hoped for, but instead of answers, a disconcerting series of further and not so comfortable questions. We are getting our first taste of intellectual sophistication.

Nowhere is this more inevitable than in relation to that outside world we naturally first demand to know. Following common sense we address ourselves to the simpler inanimate objects of our environment, our chairs and tables, for example. The science of mechanics deals quite fairly with us; to a plain question it returns a plain reply. *Thus these objects behave, and thus.* But when, on the following day, it occurs to us to ask, "Well, yes, but what are they made of?" chemistry comes forward and we find our table to be a rather less familiar object than we had supposed. All the same, even after all the chemical 'combinations' and 'elements' have been exhaustively described, we find that our question has not yet been answered. To be sure, our table has taken on a strange appearance, and our education is proceeding nicely, if somewhat depressingly, but we cannot flatter chemistry that we have reached a terminus. "Ah," says the chemist, "I see you are hard to please. Let me introduce my friend, the physicist. He will set your mind at rest."

Our chemist, however, proves to be sadly mistaken, and suspicions that all was not as straightforward as it seemed, begin to receive the rudest confirmation. In the physicist we find no confident exponent of certain knowledge; on the contrary, we discover a gentleman perplexedly scratching his head and remarking, from time to time, "Well now" and "After all" and "Perhaps". More disturbingly still, he concludes his reflections with a "Perhaps not".

But how is this? We were only asking about our table, apparently a most reasonable inquiry. And just what is it that the physicist replies? "My scientific table," says he, "is mostly emptiness. Sparsely scattered in that emptiness are numerous electric charges rushing about with great speed; but their combined bulk amounts to less than a billionth of the bulk of the table itself. . . . There is nothing *substantial* about my second (*i.e.*, scientific) table. It is nearly all empty space—space pervaded, it is true, by fields of force, but these are assigned to the category of 'influences', not of 'things'. Even in the minute part that is not empty we must not transfer the old notion of substance. . . . Whether we are studying a material object, a magnetic field, or a duration of time, our scientific information is summed up in measures. . . . The measures themselves afford no ground for classification by categories. We feel it necessary to concede some background to the measures—an external world; but the attributes of this world, except in so far as they are reflected in the measures, are outside scientific scrutiny." [1]

This sounds bad enough, but there is worse to come. "The recognition that our knowledge of the objects treated in physics consists solely of readings of pointers and other indicators transforms our view of the status of physical knowledge in a fundamental way. Until recently, it was taken for granted that we had a knowledge of a much more intimate kind of the entities of the external world. . . . The Victorian physicist felt that he knew just what he was talking about when he used such terms as *matter* and *atoms*. . . . But now we realize that science has nothing to say as to the intrinsic nature of the atom. The physical atom is, like everything else in physics, a schedule of pointer readings." [2]

And as for pointer readings, or those measures with which physics has come to deal, such as potential, interval, scale, stress, and so on, they constitute, we are told, a cyclic field, wherein each term is defined in terms of the others.[1] Thus physics has become a system of interlocking measurements, self-consistent because mutually derivable; but the question of what it is that is being measured not only is not answered but, according to the physicist himself, is unanswerable by means of his scientific technique.

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[1] *The Nature of the Physical World*, A. S. Eddington, N.Y., 1929, pp. x–xi.

[2] *Ibid.*, pp. 258, 259.

Here the physicist leaves us, adding as consolation that after all his world of physics is only symbolical and that we can return to our familiar world of sense with the assurance that it is still there. But we recall the fact that we were asking for information rather than reassurance. We adolescents have no doubt that the external world is still there, but we continue to fear that the naïve view of it, presented by our senses, is in need of some correction.

We have heard, of course, of that kind of monism that reduces everything to 'mind-stuff', under one name or another. But frankly, the theory of mental monism seems no less crude than the material monism of the Victorian physicists. It appears highly improbable to us not only that the table is merely in our minds but that its essence is at all comparable to our own. Later on, we shall have to discuss Neutral Monism and the Double Language Hypothesis, but for the moment we are satisfied with the excellent lesson in scepticism taught us by modern physics.

Our first shock on learning that matter, or substantiality, is an illusion, is so severe that already doubts begin to arise in us respecting those 'measures' now so confidently offered us by physics in place of our old atoms and electrons.

We read in relativist physics of various "frames of time and space"; it would seem that the measures in question are not unconnected with such frames. And different frames, it appears, necessitate different corrections of the measures; this being Relativity. But what of that unmentioned Frame within which Relativity itself, along with its own 'absolutes' of time, space and the velocity of light, becomes an object? What, in fact, of the relativist physicist? Is not Relativity within the frame of the relativist, and is it not therefore conditioned by and relative to his frame?

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[1] *The Nature of the Physical World*, pp. 262–4.

Well, if we must be sophisticated, we must. What does all this talk of frames and relativity and measures amount to in plain terms? Nothing so new perhaps. The concept of a 'frame' is only the familiar concept of the direction from which or the way in which a given person views things. It is much too easy to blame his location for this. Space and time may not be the prime criminals. If we accept responsibility for our nocturnal dreams—a commonplace of all rational investigation of dream phenomena—we must equally in all fairness admit that we ourselves, and not an unknown something called 'location', manufacture our waking 'frames'. In short, our 'frames', like our dreams, depend upon ourselves. But who are we? Unfortunately we are Eddington's "Mr. X"; that is, an entity apparently left out of account by these august sciences.

Should we object, then down the wind comes the hoary admonition to take it for granted, since taking it so is easiest. Take what for granted? The chemist and the physicist, of course, or whoever it may be that makes the investigation. And why should we do that, since it is not just the easiest way we are seeking, but satisfaction? Because, since we have to take ourselves for granted, it is only polite to accord a similar courtesy to others. But then we ask: Must we take ourselves for granted? Must we for ever remain the taken-for-granted "Mr. X"? If so, why? And again why?

In the end it comes down to this: that in every investigation there are at least two elements, the investigated and the investigator. Now if the former happens to be the light spectrum and the latter a colour-blind gentleman, we should scarcely expect the investigation to make much headway. In short, we cannot take him for granted. Similarly, we completely refuse to take it for granted, in the absence of evidence, that human investigators in general are free from universal human idiosyncracies amounting to a variant of colour-blindness.

Assuming mankind's problem on this planet to have been, and to be, the problem of understanding the world in which it finds itself and its relation to that world, then first of all, before we can trust his findings or have confidence in his reported knowledge, we must have a serious critique of man's own powers and abilities. To reduce it to the concrete, beneath all my investigation, beneath all I say, do, feel, and think, is 'I'. We must ask who or what am 'I'?

To this question our first reply is likely to take the form of the name-and-address fallacy. We cheerfully respond, as if to the civic authorities, "I am John Crabtree who lives at 1047 Trojan Drive, is married to one Annella Priss and works at the establishment of E. Mazurk & Sons."

But what if Annella runs off with the chauffeur, Mr. Mazurk decides that he can use a new department head, and the mortgage is foreclosed at Trojan Drive; what if, to please an elderly but wealthy relative, Treecrab replaces Crabtree? To be sure, a new job is probable, a new address certain, perhaps there may even be a new Annella; but none of these were in the original specification. Have we then a new and different person? Of course not; we have the same person as before, but now in different circumstances. Our momentary doubt only arose because we mistook a description of Crabtree's surroundings for a description of the man.

It is surprising that we, who a moment ago were complaining of the physicists, should have fallen into so naïve an error. Let us by all means start afresh, "I, Crabtree, am happy and optimistic most of the time.

I work energetically and like outdoor sports; I am not much of a highbrow, but if I must say something, perhaps I am usually critical toward ideas and theories."

Maybe we have done better now; yet there still seem to exist serious omissions, not so much in the details of our information as in its character. After all, is Crabtree always happy, does he always work hard and always criticize? Unfortunately he both is and isn't all the things implied in our description; sometimes he is and sometimes he isn't. But surely, if we could only pierce to the heart of it, what he really is, remains the same; it is not a different Crabtree but the same one, who by turns is glad and sad, active and lazy, critical and broad-minded. We have only been describing his moods and a small part of his behaviour. Even were this process carried out thoroughly, we should have in the end only a series of contradictory statements and a mass of information regarding his conduct but none of *him* whose conduct it is.

Two such mistakes are enough to prove that we have been over-confident of our abilities along these lines. Let us therefore humbly apply to the properly qualified experts on the subject, who no doubt will set us right immediately.

It seems that in the early days of our civilization this question was in the hands of the Church. The Church knew who 'I' am. But alas, we are no longer in the early days of our civilization, and furthermore, something very remarkable seems to have happened to the Church.

There is some reason to suppose that before undergoing what can only be called degeneration by fissure, the Church did fulfill the rôle of administering religion by competent authority for the benefit of the ignorant and learned alike. But prosperity brought its brood of evils, and these evils unfortunately are in no wise diminished by the fissure of their host, for if one big Church is bad, a mob of little ones, involving a multiplication of maladies, is worse.

The Church as a police force for the superstitious may have some claim upon society; but so far as concerns the religious experience of the individual, it would seem that the billions invested in church edifices and organizations in the Western world might as well have been spent in sweeping the Atlantic Ocean.

Where else, then, if not to the Church, may we turn? Why did we not think of it before? How could we have forgotten that to-day it is as fashionable to expect from the scientist an answer to our questions as, some centuries ago, it was *à la mode* to await those replies from the Church. And naturally it would seem that the question of 'I' belongs to psychology. Then let us apply to the psychologist; perhaps our answer is ready to hand.

But no; a fresh disappointment awaits us. "A subordinate matter," says one, while another remarks that "present research is not interested in this question". In fact, in examining the literature of modern psychology, we can find scarcely any mention even of our subject. Many psychologists deliberately set it aside in favour of work which would seem more appropriate to inquiries concerning rats and apes; or at best, they confine themselves to infants of our species that can hardly say Boo. Finally, when at last we discover a few who do address themselves to our perplexity, we learn that among themselves they are far both from agreement and from finality.

Much of this ambiguity is undoubtedly due to the haphazard development of psychology during the last fifty years. It is reported that a collection of definitions was recently gathered from a number of leading psychologists and that one hundred and thirty-eight different views were obtained regarding the very subject-matter of the science. Such a confusion of tongues among professionals suggests the initial necessity of establishing a general position; we must make a preliminary outline of the field of psychology which we shall consider valid whether or not we chance to find any psychologists at present engaged in cultivating it. If there is a legitimate field of inquiry unoccupied by other investigators, then that legitimate field exists, in the same sense that a mathematics exists even in the absence of all mathematicians.

First of all, then, psychology is a science. This title, which it shares with the other sciences, has no very recondite meaning. It simply implies the fact that psychology proclaims its adherence to a certain special method of procedure ; this procedure is clearly described as comprising the following four steps : first, the careful collection of data appropriate to its subject-matter ; second, the construction of hypotheses that subsume large numbers of these data into general laws ; third, the devising of properly controlled and reproducible experiments by which such hypotheses may be put to an objective test ; fourth, the resulting proof or disproof. At once, with Dunlap, we throw out a great many quacks and pseudo-quacks, character-analysts, new-thoughters, Coue-ists, psychic researchers and many similar big and little business men who "strut before the public in borrowed plumage, calling themselves 'the new psychology' ".[1] These persons talk more or less scientific jargon but fail to fulfil the essential requirements of procedure that are implied in the term *science*.

There remains the question of subject-matter which to-day is so confused, owing partly to the fact that psychology has developed as a science only within the last half-century and that it has done so in advance of any clearly formulated programme. Thus we find to-day many conflicting schools among psychologists—psychoanalysts, behaviorists, purposivists, *Gestaltists*—and many controversies which in time will doubtless be settled by evidence. And also we find not a few of what Prof. Woodworth of Columbia University calls 'schisms', that is, disagreements that appear to be impossible of solution on evidence and to depend rather upon ineradicable personal prejudices of the disputants.

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[1] *Psychologies of 1925*, Clark University, 1927, p. 309.

Could we afford to disregard these various 'schools' and deal only with the phalanx of conservative psychologists who occupy a middle ground and are not identified with any special sect, matters might be simplified. But in the present situation this cannot be safely done, since by virtue of their very vehemence the extremists illuminate perhaps best of all the course of modern psychology.

All this is to be attributed to the youth of the science and its consequent lack of a common base and a common agreement as to aim, such agreement, for instance, as has been established in physics and in biology. But there is another cause of obscurity and this derives from the past in the form of a double heritage supplied by philosophy. One aspect of the inheritance has been the unloading upon psychology of various philosophical problems that are in fact either outside the realm of psychology as a special science or are of a kind to which only a practically completed science of psychology can provide any answer. In the attempt to deal with them psychologists have neglected preliminary matters of the greatest importance, have tried to force their science into premature or illegitimate paths, have been led thus to lose their own way while trespassing upon the territory of others.

A notable instance appears in the following passage of a well-known and successful psychoanalytic investigator: "The great tragedy of the human mind is its inability to convince itself that it need never and can never know the ultimate nature of the universe; but that its sole problem is the creation of a social state whereby the greatest efficiency, goodness and happiness can be had by all the number."[1] The least that can be said of this statement is that it is entirely premature, since only when the labour of investigation is finished, of which the present results are the merest beginnings, only when we know beyond peradventure what is the true nature of man, can such absolute conclusions be safely drawn. And even then it is doubtful whether such conclusions will come within the scope of psychology.

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[1] *The Autonomic Functions of the Personality*, E. J. Kempf, 1918, p. 146.

In the reaction from this type of error an opposite error has sprung up among certain contemporary psychologists. Undoubtedly philosophy used to be the critic of all the sciences, the court before which the *assumptions* upon which any science is based were either confirmed or repudiated. What shall now discharge this indispensable function, if not psychology? Yet the conservatives in psychology just now seem to be concerned in hotly denying that this task has devolved upon their science. They decline to carry the baby.

Nevertheless, it is indeed the one valid and legitimate heritage from philosophy to psychology. All other sciences to-day must apply to psychology for approval of the ground on which they stand, for the simple reason that all scientists, all philosophers, all logicians, as well as the man-in-the-street and the psychologist himself, are the subjects of psychology. Man has constructed the sciences, man has built philosophy, and the very processes by which he has done so are what psychology investigates. Before, therefore, we can judge of the validity of the results achieved by the sciences and by philosophy, we must first ascertain the validity of their antecedents, the means used to reach them. And since we do not repent our refusal to accept revelations and since we are men, we must have a serious critique of man's resources before we can feel secure in receiving what he calls his knowledge or in trusting what we call our own.

An example of the difficulties into which we can fall as a result of our failure to recognize that psychology is in a *unique* position as a science has been furnished lately by those behaviorists who, in their commendable desire for objectivity, have attempted to reduce their descriptions of man to the elements of physics. Says Prof. A. P. Weiss of Ohio State University, "Thus, in the last analysis, human behaviour is reduced to movements between electron-proton systems, but this reduction is the final aim of all scientific investigation."[1] This view seems to be based on the Rutherford-Bohr electron-proton theory which has already been made obsolete by the work of the German physicists, Heisenberg and Schrodinger, among others. The objection, however, is not a serious one, since Prof. Weiss asserts his readiness and ability to adapt himself to any further development in the theory of physics.

Nevertheless, it is plain that there is a serious error in Prof. Weiss' position. Whether or not the objective world is a construct of the 'mind' is at present not demonstrable, but it is not open to doubt that man's idea of the world, as formulated in the natural sciences and particularly in the electron-proton (or any other) physical theory, is man-made. These sciences, as formulated, consist of series of hypotheses each of which has survived a partial pragmatic test (for a complete pragmatic test eternity is necessary), and it is man who has both constructed and tested the hypotheses. From a strictly behavioristic point of view the world regarded as an electron-proton interaction is a product of two elements, the objective world (stimulus), and man, who makes the physical concept (response). The ultimate truth of the physical theory can be known only when the influence upon objective reality (perhaps a distorting one) of the second factor, man, is known. It is simply illegitimate to define the second factor in terms of the product, namely the electron-proton theory, whose own existence and warrant depend upon that second factor.

Such a procedure is a naïve error of logic and sets in motion a vicious circle in which the physicist takes himself (that is, psychology) for granted, at the same time that psychology takes the (psychologically) unchecked findings of the physicist for granted.

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[1] *A Theoretical Basis of Human Behavior*, A. P. Weiss, 1925, p. 36.

In other words, Prof. Weiss assumes the validity of the very physics which it is part of his task, as a professional psychologist, to criticize. But he is not alone; psychologists of other schools make, it is true, other assumptions, yet it appears on examination that they make equally indefensible ones. To begin work, every science with the exception of psychology must make at least several assumptions; psychology, on the other hand, owing to its unique character, is entitled to make only one, as we shall later attempt to show; and even that assumption is of such a kind that it is not really an assumption at all.

We cannot, in fact, avoid our responsibility as the heirs of philosophy. The age-old questions retain their importance, and will while the human brain exists; what has changed is only our persuasion as to how they best may be attacked.

We now believe that they may be most profitably investigated by the modern weapon of scientific method. While this change was in course of being made, it used to be said that philosophy included all the sciences. Now that it has definitely occurred, the converse must be true: somewhere or other within the grouped sciences all the questions of philosophy, which are now divided among specialists, must be found and must be solved in the spirit of the scientific method rather than by the processes of "arm-chair reflection". What is more, of all these questions the most radical and crucial belong to psychology. The only rôle, but a very momentous rôle, left to philosophy is the resumption of these scattered threads and their weaving into a self-consistent fabric.

Psychology, then, is a science and its subject-matter concerns man. With the materials of which men's bodies are built, with the genetic relation of these bodies to others in the organic kingdom, with the delineations of the courses of nerve and other currents and with the various physical events occurring in them, other sciences are concerned. In spite of much resolute treading upon the toes of these fellow-workers by many modern psychologists we must maintain that psychology's proper business is the investigation of those processes in man which we are accustomed to call conscious and of those, if any, which resemble conscious processes.

In the most general terms possible, the subject-matter of psychology is that which is implied in the question: what are we? or perhaps better, what is a man? As C. K. Ogden puts it, "Conchology cannot (answer), nor yet Ontology; nor can Physics. Physiology can help us only in part. Psychology is the only means by which this momentous question can ever be fully answered."[1]

And the significance of "this momentous question" is only intensified when it is put in the concrete form in which it applies to each of us as individuals—"Who am 'I'?"

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[1] *The Meaning of Psychology*, C. K. Ogden, N.Y., 1926, p. 1.

CHAPTER I

RELIGION, PSYCHOANALYSIS, PAN-PSYCHISM

It will be of advantage, we feel, not to dismiss entirely all former attempts to solve the problem of 'I', simply because they appear to have failed to produce any completely satisfactory result. It is possible that we may find some useful items in such previous attempts and a brief review of their leading examples can do us no injury. First of all we might consider the most venerable theory, and one still held in respect if not in awe by vast numbers, the idea, namely, of the 'soul'.

In its crudest form this is the theory that I have, in addition to a body, a soul that animates the body. What is called death is the violent but natural separation of the two, the body thereupon returning to the earth and the soul (which 'I' accompany) departing to realms unknown, but surmised to be pleasant or the reverse according to the body's previous conformity to a code of behaviour defined in the doctrine. A refinement, or perhaps the original, of the hypothesis declares that 'I' am no other than this soul.

The first version has obviously nothing to say concerning the nature of 'I' but serves merely to push the field of inquiry farther back, since it interposes between 'I' and my body another entity called my soul. All the same it had this advantage, that it described the soul as a natural phenomenon composed of certain supergaseous substances. And it preserved a tenable position in relation to scientific criticism by maintaining that a further development of scientific technique and instruments would show its claims to be founded on fact.

The scientific criticism of this position consists, of course, in asserting that the observed facts are fully explicable on much simpler grounds and thus that there exists no rational necessity for the more elaborate hypothesis. On the other hand, the scientist is forced to admit that the principle of parsimony constitutes no final argument, since, after all, the universe may not be constructed for the express purpose of accommodating our mental laziness.

The more seriously considered advocates of the soul-doctrine, however, have nowadays vacated the former relatively advantageous position and they now deny all substance whatsoever to the soul, maintaining that it is simply the animating, supernatural principle of the more concrete body. Thereby they are exposed to much more serious objections than are to be found in the mere principle of parsimony.

For there is nothing supernatural, quite the contrary in fact, about the 'animation' of a steam engine when a fire is kindled under its boiler or about its 'death' when the fire goes out. If therefore an animating principle or life-force is the essence of the argument for a soul, the supernatural mystery is quickly resolved into a complicated, but chemical, process.

For our bodies are run—they exhibit those characteristics to which we give the general title, life—by means of a process of oxidation. Fire is fundamentally an oxidation reaction, the flame and heat being by-products: and the substances that enter our bodies as food, in conjunction with the air we breathe, undergo oxidation or slow burning; their molecules break down, are re-combined with other chemical substances to nourish the cells of the body, rebuild them and carry off the refuse. Can this *process* be the soul? In the end it is the breakdown of this process that is the immediate cause of natural death.

In order to present a sharp contrast between the religious and the biological view, we have undoubtedly attributed to biology, in the position above advanced, a somewhat old-fashioned standpoint. In fact nowadays there exists within biology itself a certain defeatist school, strikingly parallel with the defeatist school in physics, which endeavours in a nebulous way to embrace the soul-doctrine. The up-to-date way of doing this is first to repudiate any straightforward vitalism. In the words of J. S. Haldane, a leader of this biological school, "The vitalists (have failed) because we can show by observation and experiment that it is impossible to distinguish within the organism any influence not dependent on that of environment, direct or indirect."[1] The next step is to repudiate mechanistic interpretations. "What we actually find is that the life of the organism is an indivisible co-ordinated whole which is constantly maintaining and reproducing itself. The phenomena of life cannot be fitted into the scheme of physico-chemical interpretation."[2] Between these last two sentences there is certainly no such connection that the second follows logically from the first; and in fact the attempt of this school seems to be, by talking rapidly in circles, so to confuse the issue with sophistries concerning the alleged nature of 'wholes' that any solution becomes impossible by definition. Thus they say, "We cannot separate organic from environmental structure, any more than we can separate the action of the environment from the reaction of the organism."[3] This is a strange assertion, for of course we can separate very clearly for example, the phasic nervous impulses originating from environment and the tonic originating within the organism, and in fact modern neurological theory is built around this significant distinction. If the defeatist assertion were true, it would be equally impossible for us to separate the environment from the planet Earth, or the planet from the solar system, or the solar system from the universe, and scientific investigation would become impossible.

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[1] *The Philosophical Basis of Biology*, J. S. Haldane, 1931, p. 103.

[2] *Ibid.*

[3] *Ibid.*, p. 14.

The fallacious implication in all of this is really very simple; it is the illogical notion that because two things are related, they are therefore identical. As we shall see, the Gestalt school in psychology, like the defeatist school in biology, uses this fallacy about 'wholes' for the purpose of attacking the detailed work of those whose outlook disturbs their own emotional bias against mechanism; for in fact the 'wholes' with which the 'holists' like to deal are no more truly 'wholes' than the 'parts' to which they object in the case of others. There is only one real 'whole', and that is the whole Universe.

For our own purposes it is necessary to notice that the majority of biologists are not of the above opinions. Dr. Crile, for example, who is at least as leading a biologist in America as is Professor Haldane in England, has been engaged for a number of years upon the problem of the 'artificial' creation of life from non-living material, and his work has progressed so satisfactorily that already it is rumoured that he is on the verge of the accomplishment. Whether he succeeds or not, the great mass of biological opinion is to the effect that this is theoretically possible; it is thus to the effect that the source of our physical animation is not due to a 'soul' but to purely physical causes, no matter how complicated or how interrelated with various electrical, chemical and physiological subdivisions of physics they may be.

As Sir Arthur Keith, the President (1927) of the British Association for the Advancement of Science, puts it, "Now, when physiologists study the living brain of an ape, they have no grounds for supposing that they are dealing with a dual structure. The brain is not a tenement inhabited by a spirit or soul. The 'spirit' or 'soul' is but a name for the manifestations of the living brain. The leading neurologists of the world are agreed that the same is true of the human brain."[1]

Needless to say, such physical sources of our physical energy no longer retain any mystery in principle, nor could they be at all supposed to be eternal. But the adherents of the soul reply that of course they do not mean that the soul is the physical energy that makes the body go; they have in mind quite another kind of energy, "spiritual energy". We wonder what this can be, since they allege it is not a substance and since, further, we are becoming familiar with the entirely natural *process* of resupplying those substances that go to make up a man. In vain we ask for information as to the characteristics of such an energy, even non-substantial ones. They reply that although they indeed know nothing of it and have only subjective emotions to support their view, they "have faith" that it is indeed so.

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[1] "What I Believe", Sir Arthur Keith, *Forum*, April 1930, p. 224.

As Professor Troland of Harvard has remarked, this is only a "dignified way of avoiding the issue".[1] And those of us with less faith or credulity are forced to conclude that the word 'energy' really has approximately the same meaning for them as for us. In the absence of intelligible evidence to the contrary we must also conclude that they do mean that the soul is the ordinary energy of the body, which, owing to the elusive nature of all energy, is open to mysterious interpretations. For why imagine, without a shred of evidence, that a physical body needs other than physical energy? Especially when we are in a position not only to identify the energy but to prove that it is sufficient, within a very small fraction, for all that the body does.

This small fraction, of course, might be supposed to be the very loophole for which the vitalists are searching, except for a significant circumstance. Not so long ago this fraction was considerably larger than at present, last year it was larger than now, next year there is every reason to believe that it will continue to shrink, and shortly it will in all probability disappear. In fact, the uncompensated fraction is a measure, not of the intervention of the soul in human activity, but of the difference between perfection and present performance in our instruments, data and calculations regarding the energy intake and the energy output of the human machine. After all, the matter is somewhat complicated, and even vitalistic impatience should allow a few years before prejudging the final result.

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[1] *The Mystery of Mind*, L. T. Troland, New York, 1926, p. 21.

But perhaps there is something which is not done through the agency of our bodies? If this were so, there might be the possibility of our use of other than purely physical energies. But, to anticipate a little, we now have evidence that our thinking and feeling (which used to be considered non-physical activities) are as fundamentally dependent upon physics as the movements of our legs; and thus, unfortunately, the last vestige of support for our possession of non-physical energy vanishes. For with thinking, feeling and physical movement all our known activities are exhausted.

If 'I', then, be equated with the soul (as is the case in the theory under discussion), 'I' become merely an aspect of the operating body mechanism, an aspect that disappears at once with the cessation of the body's operation. Both 'I' and the soul become subordinate details of the body, an idea which has recently come into fashion and which we shall investigate later.

But if it still be urged that we are unfair to the soul in dismissing it as not proven, this theory only grows more unsatisfactory upon further examination. For we are asked to regard a serious question as finally answered by an assertion which cannot even be intelligibly formulated. In short, we are asked to "have faith", thus denying one of our most truly human qualities, the impulse to reason. From that position the majority of us would prefer to escape, just as we should flee the incantations of a jungle wizard.

Here indeed, in this matter of 'faith', is the crux of our modern disagreement with the traditionally established claims of religious dogma. Religion nowadays has two aspects, that of ethics and that of philosophy, the advocacy of a certain code of personal conduct and the advocacy of a particular doctrine purporting to explain the nature of reality. As to the ethics there is good reason to suspect that its mandates are of a *social* rather than an individual value, but it is the other aspect, that of the interpretation of objective fact, with which we have now to do.

It is this side of religion which, as Dr. Hodgson says (quoted by Dr. Troland),[1] comes down to the following principle: "'Whatever you are *totally* ignorant of, assert to be the explanation of everything else.'" Our very ignorance is the basis underlying our invited agreement, since it is just in regard to those matters on which we possess no knowledge at all, that we are in a position to exercise the greatest 'faith'. The only ground offered for our participation in this view is an appeal to a series of ancient documents, already translated and retranslated, through scores of prejudices.

Now there may be good reason for supposing that the original doctrine of the Church was far more rational and significant than it has become on the lips of its present-day spokesmen. But there is no use in crying for the impossible resuscitation; we have no clear access to any but modern Church leaders and we must fairly judge of it by their standpoint, or not at all. Unfortunately, the opinions even of those who are inclined to agree regarding the earlier significance of the Church, remain simply speculations, for these persons have no more *knowledge* than the rest of us of what its earliest significance was.

Whatever therefore may have been the first associations with the word 'faith', it is impossible to doubt that its present synonym is 'credulity', *i.e.*, belief without reason, and from such an atmosphere, with such an outlook, we cannot expect the respectable assistance which a serious investigation merits. With the best will in the world we are forced, by the current attitude of

[1] *Op. cit.*

the Church itself, to carry our efforts in other directions.

There is another and more sophisticated proposal met with to-day. This is the mind-theory, implicit in much of modern psychology and particularly in psychoanalysis and the psycho-philosophical doctrine of Panpsychism where, more formidably than elsewhere, it is plausibly supported.

'I', say its adherents, am not a soul but a mind, the argument running as follows: one cannot doubt that consciousness exists: the brain is an organic mechanism which in its nature cannot be equated (although it may be associated) with consciousness. Since the brain itself cannot be conscious and since nevertheless something is indeed conscious, we will call this something 'mind'; 'I' equals mind, because for various reasons (which will appear later) 'I' cannot equal body, much less that subdivision of body called 'brain'.

That this is mere verbalism based upon the old philosophical theory of parallelism, seems evident upon a little inspection. It amounts to precisely nothing to say that something equals mind equals 'I'. Let us add, "equals X", and we have what is actually put forward, namely, that an unknown is involved, thus leaving the original problem still unsolved. To restate the dilemma, even in novel terms, gets us nowhere.

In fact this line of argument suggests the common attempt to persuade ourselves that we have made progress by supplying a verbal label which, though familiar in sound, lacks any real content. The term 'mind' as ordinarily used is in fact only an abstraction of 'brain', and refers to a part only of the operations of the brain. For the brain fulfils other than conscious functions. And this brings us to those who, aware of the fact, have invented further kinds of 'minds' to cover the phenomena,—minds 'subconscious', 'foreconscious', 'unconscious', and all the rest of it.

It requires nimbleness to follow their agile *volte-face*.

Originally the word 'mind' referred to conscious data and the word was invented for that purpose, but when 'mind' begins suddenly to be spoken of as 'unconscious', we are presented with the spectacle of an intellectual term involved in hopeless self-contradiction. It is true that many phenomena are known, in all respects resembling those of consciousness except that they lack the conscious factor; and thus if we are to assign a rôle to 'mind' in the latter, it is but natural to presume an "unconscious mind" in the former. This, however, amounts only to perplexing ourselves still more, for if mind equals X, surely unconscious mind equals X to the *x*th.

The position borders closely upon a species of mysticism centred upon a mysterious entity, 'mind', which possesses magical properties. And when it is urged that the hypothesis has served excellently (as it has) to explain many previously misunderstood activities of a psychologically abnormal kind, we may reply that the same sort of passing service was rendered by the 'æther' of the physicists of 1900, and suggest that the psychoanalysts take the lesson of the subsequent adventures of æther to heart.

For the current development and reinforcement of mind-theories in psychology must be traced primarily to the speculations of the psychoanalytic school. At least this seems to be true of the most elaborate theories now put forward and those which, in the sense of resting upon some sort of evidence, are the strongest. Yet, curiously enough, in this very fact lies one of the greatest weaknesses of psychoanalytic theory.

Psychoanalysis began as a therapeutic *practice* with Freud's famous "talking-out catharsis", and although there have since then been many complicated developments, practice for the analyst has continued to precede theory, as Prof. Woodworth points out.[1] That is, particular kinds of procedure have been found empirically to be successful, or partially so, in the treatment of various 'nervous' ailments, and thereafter an hypothesis has been sought to account for what has happened.

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[1] In his lecture courses at Columbia University.

Such hypotheses comprise the several theories of psychoanalysis which, though differing in many particulars, have this as a common basis in their view of the nature of man: that a man consists of a mind and a body and that the former can be studied without reference to the latter. In the words of Dr. Bernard Hart, "The psychological conception is based on the view that mental processes can be directly studied without any reference to the accompanying changes which are presumed to take place in the brain."[1] And "the psychological conception treats of the phenomena" (of insanity) "as states of mind".[2]

No doubt there is justification for proceeding along these lines as regards the very practical problems with which the analyst is confronted, and especially so since we lack anything like complete anatomical and neurological data. But that is a very different thing from admitting that a useful hypothesis is also true.

Dr. Hart recognizes this and takes care to caution his readers against such a confusion,[3] but many psychoanalysts are not so clear-sighted. It is not unheard of for them to urge that their success in treatment argues the soundness of their theories. And most laymen, superficially acquainted with psychoanalytic doctrine, certainly assume that because definite results can be obtained on the premise of a 'mind', there must needs be some such entity.

But 'mind' in psychology is a term like 'force' in physics, a concept used to cover a series of observed phenomena. All that we can really be sure of, are these phenomena themselves; and although by the use of the concept force much practical engineering work can be accomplished, the term has long since been recognized in advanced physics as having no other significance. It is as if we should find ourselves better able to ride horseback if we imagine an invisible hand lifting us in and out of the saddle; in such a case perhaps we should be well advised to indulge the notion, but surely not to believe it.

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[1] *The Psychology of Insanity*, 3rd edition, Bernard Hart, Cambridge, 1916, p. 9.

[2] *Ibid.*, p. 12.

[3] *Ibid.*, p. 19.

Hypotheses are scientifically confirmed by experiment and thus by their ability to forecast new facts and not merely to explain old ones. But such a justification has never been presented by psychoanalysis, probably because the analyst is primarily engaged, not in scientific research, but in therapy. In view of the fact that his work is with unstable subjects, in view of the extreme difficulty presented by a field in which 'motivation' plays so important a part and of the absolute necessity of carefully selected control groups in the case of any experiments carried out in it, such confirmation seems out of the question.

Quite apart from its theoretical basis, however, even the assumptions upon which the practice of psychoanalysis is founded have been seriously challenged by Dr. Trigant Burrow, who himself was formerly a brilliant psychoanalyst.[1]

His objections, much too involved for treatment here, have to do in part with the position that the analyst himself is already an abnormal human being shaped by an abnormal environment which he shares with the rest of us; and that the so-called 'normal' sexual impulse, an important factor taken for granted in psycho-analysis, is in a certain sense not normal at all.

However all this may be, it is evident that the situation promises very little hope for our special inquiry.

A much more subtle view-point is to be encountered in the theory of pan-psychism. It was William James who suggested that it is not 'mind' that thinks, but that the thoughts themselves are the thinkers. Hence followed the proposition that what is conscious, is consciousness. The pan-psychists conclude that with every unit of matter there must be closely associated a unit of consciousness; and since matter is now conjectured to be finally electrical, we have—consciousness is associated with electricity. But inasmuch as electricity equals X, we arrive here also at no understanding, having only shifted the scene of inquiry from the psychological to the physical laboratory.

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[1] *The Social Basis of Consciousness*, Trigant Burrow, International Library of Psychology, 1927.

The pan-psychists, of course, will deny this. We must therefore consider more carefully the proposition that it is consciousness which is conscious. Well, what does the statement mean? Is it more than another verbalism? If not, how are we to conceive of something which is at once an entity and also a state? For it can scarcely be denied that consciousness is a term referring to a state or condition, is at the present time generally and technically accepted in that sense, and indeed always has been.

In everyday discourse we speak of a man being deprived of his consciousness by a blow on the head or by an anæsthetic, and in the laboratory we refer to certain psychological phenomena of consciousness. In both cases consciousness means conscious state, a condition of *being*, characterized by a self-recognizable quality to which the label *awareness* is sometimes attached.

To say that consciousness is itself the *subject* of consciousness is utterly to confuse the valid distinction between subject and object; it is to fall into the error of confusing the something which is conscious with whatever that something is conscious *of*.

But the pan-psychist replies that the phrase "conscious of" is really meaningless, for the pan-psychic theory, in common with a view-point somewhat general among psychologists, makes no distinction between consciousness and conscious content. It asserts consciousness to be composed of certain items—as for example, red, hardness, pleasantness, and so on—but adds that it is not possible simply to list a succession of such items in order to have a description of consciousness, for they bear to each other various definite relationships, such as spatial and temporal, and their particular configuration at any given moment is an integral part of consciousness at that moment. Consciousness is made up of parts just as an automobile is, but as with an automobile, the parts do not make an indiscriminate heap but are arranged in a definite design. Thus two factors are necessary for a complete description of consciousness; when we have listed all the items of conscious content and when we have adequately described the precise relations which all these items bear to each other and to the whole of which they are parts, then and not till then have we a scientific account of consciousness. Here, in terms of description, is a definition of consciousness which is held by the pan-psychists to be an adequate reply to the behavioristic claim that consciousness is an indefinable term. Of course, what is actually here defined is conscious content.

Speaking generally, 'I' for the pan-psychists is equivalent to consciousness. There is, he says, really no such phenomenon as 'I'; what there is, is a number of consciousnesses, and the whole series of personal pronouns only constitute a set of verbal labels, lacking true significance, but which have been adopted for the utilitarian purpose of carrying forward dealings between these consciousnesses. Thus, to be strictly accurate, expressions like "my consciousness" should be agglutinated into 'myconsciousness', as in the already familiar expression 'myself'.

To speak more carefully, the pan-psychist does not identify 'I' with the whole of consciousness, or to use the technical terms, with the entire configuration of conscious content, but only with a part of it. This part consists primarily of the internal sensations, kinæsthesis, bodily pains, appetites, etc., although apparently some emotions and thought-processes (perhaps even the "subconscious mind") are also included.[1] And it is this special part of consciousness that is ordinarily given the label 'I'. Since for the pan-psychist 'I' is merely a layman's label, in current use for the sake of practical convenience, this is what he refers to when he uses the word 'I'; but the word is non-scientific from his point of view, an inaccurate and confusing covering for a number of specific items of conscious content which are related to each other in specific patterns.

Thus the pan-psychists, insofar as they admit the use of 'I' at all, claim that the content of consciousness is so closely related to 'I' that the investigation of one is that of the other.

Theoretically, of course, this may be true, but we cannot avoid the feeling that we are here in the presence of a serious misconception which will lead to a further confusion of the real issues. Simply to expunge the problem of 'I' on the grounds that the only datum of immediate experience is conscious content, is to cut the Gordian knot with a handsaw. The pan-psychic position is startlingly reminiscent of the second phase of historical Buddhism, wherein the self is denied and the sole psychological reality is asserted to be consciousness. On the other hand, to admit the existence of the problem of 'I' is not equivalent to proscribing the investigation of conscious content. A descriptive analysis of the content of consciousness is open to no objection as one of the tasks of psychology. But for us it is unavailing. It skirts about the question of 'I'; it does not attack it directly, and cannot possibly lead to its final settlement.

It is as if we should find Mr. Jones attending the Follies; and as if we should then expect that a minute description of the performance could properly be substituted for a correct account of Mr. Jones.

We suspect that the real question is this: what is it that finds itself in a state of consciousness? Is it 'I' or (let us discard the intermediate X called 'mind') is it the body-mechanism? We shall now permit those to answer the question who maintain the body-theory.

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[1] *The Mystery of Mind*, L. T. Troland, p. 40.

CHAPTER II

BEHAVIORISM AND ITS OPPONENTS [1]

THE last hundred years have seen great advances (as judged 'pragmatically') in the so-called natural sciences, and it is not surprising that the first decades of the present century found certain psychologists impressed by these apparent successes and wondering why their own science seemed so tardy in bearing similar fruits.

Taking counsel, they noticed at once a common characteristic of their successful colleagues; geologists, botanists, chemists, physicists, etc., all took as the secure foundation of their inquiries the verifiable *behaviour* of their various subject-matters. Why should we not do the same? asked these troubled psychologists. Just as the botanist builds his knowledge of trees upon the behaviour of trees, so we as psychologists will take nothing for granted, but shall construct a natural science of psychology upon the observed behaviour of its subject, man.

In the face of ridicule they proceeded to do so, and with somewhat surprising results. They found that man, considered as a natural object, submitted perhaps more readily than they had dared to anticipate to explanations couched in the terms already applied to other objects of science. They discovered that man is a *reacting* organism, and that his reactions consist entirely of habits in process either of being built up or of breaking down, and moreover that this double concept of a conditioned structure is sufficient to account for *all* his behaviour. When it became necessary to explain just what a 'habit' is, neurology, physiology, and eventually chemistry and physics were called in; it was found that habits necessitated very complex physical formulæ for their explanation, but that fundamentally there is nothing more mysterious than complexity about them. Man's reactions thus proving to be only highly complicated material processes, fully explicable on purely material grounds, the question naturally occurred: why include a superfluous psychic element?

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[1] Parts of the next two sections consist of excerpts, slightly modified, from a thesis entitled "An Experimental Study of the Psychonic Theory of Consciousness", presented by the author to the Faculty of Pure Science in Columbia University in 1928, in partial fulfilment of the requirements of that Faculty for the degree of Master of Arts.

It must not be imagined that the behavioristic conclusions are rashly premature or based only upon the grosser forms of behaviour. On the contrary, the subtlest reactions are included and the cognitive, affective and conative aspects of the 'mind' are fully covered.

For example, thinking (which if anything whatever does, decidedly seems to be a mental affair) turns out according to Dr. Watson[1] to be only a series of subtle muscular movements. Lashley, perhaps, would include a neural activity along with the muscular, but such a minor difference does not alter the broad fact that the process is merely a matter of mechanics quite outside the control of the individual who formerly was considered as pre-eminently the thinker. Watson, again, is disposed to deny imagery altogether, but there are other behaviorists who claim that the image is a re-excitation of the sense-organ concerned. Whether this re-excitation is aroused by a central process or not is again not germane to the issue, for in either case it is a matter of physics and mechanics and in no special sense psychic.

It is certainly too soon to maintain that the behaviorists have arrived at a complete confirmation of their case; but just as certainly it is true that they have made great strides towards it. And everything points to continued success in the attempt to express all observable human behaviour in automatic, physical terms. Their attack, therefore, upon those who feel themselves attacked is not to be met either by denying what the behaviorists have already proved or by predicting that they will fail to accomplish in the future what all the evidence indicates they will.

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[1] *Behaviorism*, J. B. Watson, 1925, p. 194.

Indeed the majority even of those psychologists who are identified with no particular group and may be called the middle-grounders, are in complete agreement with this principle of behaviorism, even though the behaviorists express the view more boldly and explicitly. To take scattered but representative examples, Professors Dunlap, Warren and Piéron, although their phrases may differ, seem equally agreed in considering man to be fundamentally a response-mechanism; and the overwhelming number of scientists professionally engaged upon this subject undoubtedly agree implicitly or explicitly with them. In truth it is difficult to see how they could hope to discover the 'laws' governing human behaviour if that behaviour itself is not governed by laws. And if it is governed by laws, then it is a 'determined' form of behaviour; and all the fine-spun verbalisms of those who find the fact disagreeable, will not alter the fact.

Laymen in general are apt to suppose that while 'physical' events may be strictly determined, 'mental' ones are not and cannot be. Yet in a realm where events are free, spontaneous and haphazard, there obviously can be no science. Since any psychology must be concerned with 'mental' events, and since even those psychologists who still cling to the meaningless term 'mind' believe themselves to be engaged in a science, the subject-matter of psychology must be supposed to be orderly; its events therefore must be of the nature which we indicate by the word *determined*.

However, we are dealing now with the behaviorists, who are perhaps the leaders of those who have thrown over 'mind' and maintain that all human events susceptible to scientific approach are physical. Among these events they include those that used to be labelled 'mental' and 'emotional'.

Thus sooner or later the behaviorist comes face to face with the problem of consciousness. And his manner of treating it has undoubtedly provided a severe jolt for those who are liable to be shocked when assumptions are boldly questioned which, due either to negligence or incompetence, have never been clearly substantiated. But the position of the behaviorist is a very natural one, and it will not do to dismiss it cavalierly, however much that course may recommend itself to certain of his opponents.

Since in general (though not as yet in every particular) the behaviorist has been able to account for all 'mental' activity, cognitive, affective and conative, without assuming any consciousness whatsoever, he very plausibly asks why an indefinable, called consciousness or anything else, should be dragged in. His first position is that the concept of consciousness is both indefinable and unnecessary, since it serves to explain nothing which is not already accounted for in much plainer terms; that it should therefore be excluded from any science, which, as a science, is confined to plain and verifiable statements.

Emboldened by his apparent success in maintaining this stand, the behaviorist has now gone on to a second position: that consciousness is an illusion born of the misinterpretation of human behaviour and that in fact no such event as consciousness occurs or exists at all. Although not all behaviorists state it in so blunt a manner, a brief review of their definitions of consciousness will show that this is nevertheless their position.

Let us begin, as is fitting, with Dr. Watson. His earlier position is adequately represented by the two quotations which follow: "The time seems to have come when psychology must discard all reference to consciousness."[1] And: "Will there be left over in psychology a world of pure psychics, to use Yerkes' term? I confess I do not know. The plans which we most favour for psychology lead practically to the ignoring of consciousness."[1] More recently his doubt seems to have vanished and he appears to have concluded definitely that no "world of pure psychics" will be left over. Replying to Thompson who had taken for granted Watson's retention of the earlier position, he says, "He (the behaviorist) 'ignores' them (mental states) in the same sense that chemistry ignores alchemy," etc. "The behaviorist does not concern himself with them because as the stream of his science broadens and deepens such older concepts are sucked under, never again to reappear."[2] These expressions, of course, do not define the nature of consciousness; in fact, definitions are superfluous of something which is categorically denied to exist.

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[1] *Behavior*, J. B. Watson, New York, 1914, p. 7.

Prof. Weiss has devoted much more attention than Dr. Watson to the philosophical foundations of psychology. The first seventy-five pages of his *Theoretical Basis of Human Behavior*[3] are given over to such discussions, and in the upshot he accepts the view of reality explicit in modern physics and defines human behaviour as a form of motion. He finds no evidence that consciousness determines human behaviour. Consciousness, Dr. Weiss implies, enters really as a modifying adjective descriptive of a small part of behaviour which is much better described as a series of speech-habits. And he is prepared to retain the term, consciousness, only on condition that it be given this specific connotation.

Hunter wishes to call behaviorism Anthroponomy, the study of man in terms of objective measurement. Psychology, he says, is in the group of sciences which include physiology, botany, geology, etc. As to consciousness, he considers that it can be properly stated only in what he calls an SP–LR relationship, that is, in terms of sensory process–language response. "Just as soon a the verbal response, LR, is made to the . . . stimulus, just so soon does the subjectivist say that 'consciousness' . . . is present. . . . Why do we not say that LR is the subjectivist's 'consciousness' and not merely the criterion of its presence? Because LR, if it is to be rated as 'conscious', must in turn have a language response conditioned to it and so be the beginning part of an (SP–LR) situation. Only in the irreversible situation do we have 'consciousness'."[1] Thus consciousness is not simply any language response but it is that special language response only which is part of the irreversible SP–LR relationship.

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[1] "Psychology as the Behaviorist Views It", J. B. Watson, *Psychological Review*, 1917, Vol. 24, pp. 351–68.

[2] "The Behavioristic Interpretation of Consciousness", K. S. Lashley, *Psychological Review*, 1923, Vol. 30, No. 4, p. 240.

[3] *Op. cit.*

Lashley believes that any discussion of consciousness must come down to a consideration of the content of consciousness. In this he is in entire agreement with the pan-psychic position, but this position is hardly that of the traditional subjectivist in psychology. The subjectivist's contention that there are aspects of this content inexpressible in physical terms, Lashley finds, after a lengthy examination, to be unfounded. He is prepared to state all the relationships between the objects, or content, of consciousness in the same terms which are used to describe the relationships between physical phenomena. A further consideration of this view (which cannot be elaborated here) will show it to be an adequate refutation of the pan-psychic proposition that 'I' equals the content of consciousness. For if this last be true and the behaviorist can indeed succeed in dealing with conscious content in physical terms, it would seem the part of reason to agree with him that no world of pure psychics remains to be considered. Consciousness Lashley defines as "a complex integration and succession of bodily activities which are closely related to or involve the verbal and gestural mechanisms and hence most frequently come to social expression ".[1] This integration is describable in purely physical terms.

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[1] *Psychologies of 1925*, Clark University, Mass., 1927, p. 90.

There are, of course, many other psychologists who are entitled to be called behaviorists, for the presentation of whose views space is not available. It will scarcely be denied, however, that the standpoints of Watson, Weiss, Hunter and Lashley are fairly representative of the behaviorist position.

Taking into account, then, the definitions cited above, it is difficult to avoid the conclusion that behaviorism denies the existence of consciousness. For one of two things must be true: either, as Watson himself accuses Hunter of doing, they are using the verb 'to be' " in a mystical way " when they say " that certain types of bodily response *are* consciousness "[2] or else they are taking a roundabout path to the exclusion from our language of the word 'consciousness' by the expedient of completely reversing its meaning. As no behaviorist can possibly admit the first accusation, presumably they plead guilty to the second, and in that case their better course would seem to be to stand solidly with Watson on an explicit denial of consciousness, a denial which in any event is implicit in their view-point.

It follows, of course, that behaviorism, in thus denying consciousness, for all practical purposes denies 'I' also, since in the absence of consciousness it can scarcely be seen how any problem of 'I' can arise. This is, perhaps, rather more than we bargained for when we applied for information, at the conclusion of the preceding section, to those who maintain the body-theory. For according to behaviorism, not only is a man a body, and a body and nothing else, but this body can never be in any state of consciousness whatever for the simple reason that consciousness itself is only a mistake. However, we have not finished considering the views of all the recognized schools of psychology on this subject, nor even of all those who in theory, if not in title, are behaviorists.

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[1] "The Behavioristic Interpretation of Consciousness", K. S. Lashley, *Psychological Review*, 1923. Vol. 30, No. 5, p. 341.

[2] *Behaviorism*, p. 112.

But first, who opposes the views of behaviorism? Full consideration is impossible, but we shall briefly examine the *Gestalt* criticism and take Roback and McDougall as outstanding leaders of the opposition.

A difficulty in dealing with the *Gestalt* criticism arises from the fact that this school is still in an early stage of development. As Hunter puts it, "As yet the *Gestalt* movement has not worked far enough into the problems of systematic psychology to reveal just how it will treat . . . problems of general theory. The movement so far has been limited largely to the field of 'perception' and to an elaborate conception of the organism as a whole."[1]

So far as can be clearly grasped, its contribution seems to be an insistence upon the fundamental importance of wholes and upon the necessity of this attitude toward wholes in any valid approach to psychological problems. One of the most important *Gestalt* principles, borrowed, in all probability, from William James, is the idea that a whole is not the simple addition of its parts, and that the characteristics of each and every part are what they are primarily because of that part's relation to the entire configuration in which it is included. (It is difficult to translate the word '*Gestalt*', but its best English equivalent is 'configuration'.)

Pushed to an extreme, the proposition becomes so fantastic that the valid element in it is likely to be lost sight of. The *Gestalt* psychologist has carried his idea so far that, as Dr. Marston says, it is becoming fashionable to maintain that there is only a face and that any investigation of a nose is quite unscientific.

In effect, the *Gestalt* school objects to behaviorism that the behaviorist is concerned solely with isolated processes, reflexes, and that this procedure can never lead to a knowledge of the total response. The suggestion of

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[1] *Psychologies of 1925*, p. 105.

Professor Woodworth, who is not a behaviorist, would seem to apply here: that the total response can be regarded as a series of stages, beginning with a stimulus and ending with a movement, internal or external. So far as concerns one of these stages, perception, it is almost certainly a 'figured' one and the *Gestalt* view holds; but as regards other stages, *e.g.*, sensory process, motor nerve process, they almost as certainly are not 'figured', and the *Gestalt* view does not hold.

Since, however, it is the general view of psychological problems which is in question, not this or that detail, it is hard to doubt that the behaviorists have stated the *Gestalt* position as clearly as has any *Gestalt* psychologist and, in the American literature at any rate, antecedently.

The following quotations will substantiate this view. Watson: "The behaviorist is interested in the way the whole body works. The student of human behaviour works with the whole body in action. It would be possible for him to carry out his studies without any knowledge of the separate parts whatsoever."[1] "Please remember . . . that when we speak both of conditioned stimuli and of conditioned responses, what is conditioned is the whole organism."[2] "I have several times maintained that when an individual reacts to an object or to a situation, his whole body reacts."[3] In the last of his "People's Institute" lectures Watson sums up his conception of the human organism as an integrated unit of response whose reactions are only to be understood as wholes.[4]

Hunter: "Anthroponomy (behaviorism) is the science of the behaviour of the human organism as a whole."[5] Lashley's work is carried on with the same attitude, as may be concluded from his interest in the nervous system which is obviously the integrative mechanism of the body.

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[1] *Behaviorism*, p. 42.

[2] *Ibid.*, p. 21.

[3] *Ibid.*, p. 202.

[4] *Ibid.*, Chap. XII.

[5] *Psychologies of 1925*, p. 93.

We have also seen that his definition of consciousness is in terms of integration. From all this we can only conclude that if the *Gestalt* movement has any serious criticism of behaviorism to offer, it can scarcely be from the view-point with which the *Gestalt* school is most widely associated.

Turning now to those critics with a more traditional background, we find that Roback has devoted an entire book to the criticism of behaviorism.[1] It is difficult, however, to treat this volume with the respect undoubtedly due to Roback's position, for the objections raised in it are of such a nature as provoke doubt whether they can possibly be intended seriously.

He finds to his satisfaction, for instance, that there are various kinds of behaviorists; and hence that, although they must have a fundamental agreement (how else could a book be directed against them ?), yet there are controversies in progress between them. But this argument unfortunately disposes of the opponents of behaviorism even more completely than it affects the behaviorists, since there is certainly as much or more disagreement between the views of Freud and Titchener than between those of Watson and Weiss. In fact, it disposes not only of all schools of Psychology but of all known sciences.

Again, Roback objects that there are not experimental verifications for all parts of the behavioristic theory; he neglects to state that, proportionately to the opportunity of behaviorism and the brief time which has elapsed since its inception, there is already an astonishing amount of evidence in favour of its basic position. Moreover, this objection is obviously weakened every time a successful experiment is concluded, and the best that can be said for it is that it expresses the hope that future facts will refute behaviorism although present ones do not. No behaviorist would maintain that he is master of a complete science or that his subordinate theories are not subject to revision as experimental evidence accumulates. But if that confession be held to destroy him, then he goes to limbo with all other scientists as his companions.

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[1] *Behaviorism and Psychology*, A. A. Roback, Cambridge, Mass.,

There is the criticism that behaviorism is indifferent to philosophy. Some behaviorists would undoubtedly reply that they know of no reason why they, more than botanists, should concern themselves with philosophy; but, apart from these, no one who has spent his energy on Weiss' seventy-five pages will be inclined to agree with the critic on the matter of fact. The core of validity in this objection is the behaviorist's refusal to acknowledge psychology's right of priority over the other sciences, such as physics; that point, however, Roback does not suggest.

Quite another type of objection is raised when Roback affirms that behavioristic theory is not in accordance with the outlook of the lawyer, the clergyman, and the doctor. One may with some justice ask what of it, for an acquaintance with these gentlemen suggests that, however estimable they may be otherwise, the outlook of the majority of them as regards psychology is abysmally lay. Neither the chemist nor the psychoanalyst (who for the purpose of this argument is classed as a doctor) is obliged to conform to their views; is the behaviorist alone to woo the consent of the uninformed? Indeed, most of us would incline to the opinion that law and medicine, not to mention religion, will be in a healthier condition to the extent that they incorporate in their practices the established facts of human psychology, rather than vice versa. Roback's suggestion appears to put the cart so far ahead of the horse that that unfortunate animal will be for ever galloping to catch up with it again.

A study of Professor William McDougall's *Men or Robots?*[1] leaves the reader with two impressions: first, that to caricature an opponent's views is still expected to destroy them; and second, that behaviorism is incompatible with the attribution of purpose to human behaviour.

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[1] *Psychologies of 1925*, p. 273.

It would hardly seem necessary to take up the first item, but since the behaviorists themselves do so, perhaps we should record what is said. 'Muscle-twitchism' is the expression selected by McDougall from Tolman as an 'elegant'[1] designation of behaviorism. To this, presumably, Dr. Watson has replied, "The response the behaviorist is interested in is the common-sense answer to the question, What is he doing and why is he doing it? Surely with this as a general statement, no one can distort the behaviorist's platform to such an extent that it can be claimed that the behaviorist is merely a muscle physiologist."[2]

More seriously perhaps, McDougall debates the question whether the mechanistic hypothesis of the behaviorist is a "good and useful" one.[3] His finding is in the negative, but we need not follow out the argument since the question itself is unimportant. What the behaviorist, together with other scientists, is interested in is the discovery of relative truth; and the "good and useful" are no more the criteria of truth than are the interesting and pleasant. On the contrary the sole criterion recognized by science can be stated as follows: that hypothesis is relatively true which corresponds to objectively verified and verifiable experimental evidence.

But the point most stressed by McDougall is, of course, the incompatibility of purpose with behaviorism. Few will doubt that mechanistic and purposive interpretations are in fact contradictory. And hence the effect of his argument against behaviorism must obviously be proportional to his success in showing that purpose is actually a factor in human behaviour. This, however, he is very far indeed from establishing, as an examination of his arguments will show.

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[1] *Psychologies of 1925*, p. 279.

[2] *Behaviorism*, p. 14.

[3] *Psychologies of 1925*, p. 273.

First of all, he says that he has a deep-seated conviction, an unalterable feeling that purpose is indeed the basis of human, and likewise of animal, conduct; and he adds that almost everybody else feels the same way. No doubt this is quite true; also no doubt a similarly deep-seated conviction furnished an effective anti-Copernican weapon and was of valuable assistance to those who formerly maintained that the earth is flat. But it can scarcely serve in a scientific discussion, and McDougall, recognizing this, attempts to reinforce it.

The behaviorists themselves, he says, take the fact of purpose for granted when they put a rat in a puzzle-box and assume that, desiring to reach the adjacent food, it will proceed with that end in view. But, in truth, the behaviorists assume nothing of the sort. It would be as proper to say that in the early gravitational experiments in which objects were dropped from the top of the Pisa Tower, the assumption was that the objects desired to reach the earth and would act in accordance with that purpose. Animal experiments of the kind cited are designed to investigate subordinate details of a general situation which common observation has long since demonstrated to be of a particular character. This character may be summed up in the statement that rats that have not eaten for some time will behave in the presence of food in such a way as to bring themselves into contact with the food if possible. There is no assumption whatever beyond the common scientific one that what has occurred in the past will continue to happen under similar conditions in the future.

McDougall's assertion that behaviorism, as mechanistic determinism, is not new but was introduced centuries ago by Democritus, provokes a comparable line of reflection concerning purposivism. It will be seen at once that behaviorism is but a new-born babe compared with a purposivism that derives from the time when the movement of every leaf in the forest, the clap of every thunderbolt, was filled with a mysterious and usually malign purpose for men. As the race became able to take external reality objectively, these matters came to be understood in terms from which the mystery has vanished, and as man struggles with the greatest difficulty toward the final accomplishment of taking *himself* objectively, *i.e.*, scientifically, exactly the same process of evacuation of the mysterious must occur.

We cannot but conclude that the behaviorist is fully justified in his contention that in this controversy he truly represents the scientific view-point and that McDougall represents the traditionally religious one. It is not mere general similarity; it is an historical point-for-point identity. It would seem that McDougall, if his position is to be fully established, is under the necessity to assail, not the behaviorists only, but the groundwork of all modern scientific progress.

Quite aware of this, McDougall tries to extricate himself in a footnote [1] distinguishing between extrinsic and intrinsic purpose, *i.e.*, between the purpose of an exterior agency using the object under consideration as an instrument, and the purpose which may be attributed to the object itself. At first glance this distinction appears to turn the tables by showing that purposivism is not necessarily unscientific since science denies only extrinsic purpose. But further reflection will show that this conclusion is incorrect and that the more deeply the implications of an attribute of purpose are examined, the more the difficulties multiply.

The reason, in fact, that science is concerned only with denying extrinsic purpose is that the intrinsic kind had disappeared from human thought long before the advent of science. Men perhaps began by attributing purpose to the tree itself and to the lightning, but eventually they came to view these phenomena as instruments of agencies further removed; and only after the latter view had been established for millenniums did science appear.

The effect of this distinction on the purposivist case may be shown by the following example taken from everyday life. Let us suppose that, fumbling through a dark and unfamiliar room, I bark my shins against a chair. If I attribute my hurt to the evil intentions of some person who has placed the furniture for this purpose, I may be the victim of a persecution delusion (extrinsic). But if I feel that the chair itself is to blame in the matter (intrinsic purpose), my case is certainly much worse. From this point of view the psychoanalysts, who are called in as the allies of McDougall, would be the first to assert that the attribution of intrinsic purpose is more abnormal than the attribution of extrinsic purpose. Our illustration receives its point from the fact that any scientific treatment of man must, insofar as it is *scientific*, deal with man as objectively as it does with a chair. If this is considered improper, the objection should be directed, not against behaviorism, but against science.

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[1] *Psychologies of 1925*, p. 283.

The purposivist's final attempt to empty the mystery out of purpose, is no more successful. Indeed, it somewhat resembles Hunter's treatment of consciousness, for what it really does is to take purpose out of purpose. McDougall states that purpose is not something added to an action (even antecedently) but is merely a word descriptive of a particular kind of action, namely, of that kind which apparently accomplishes an end. It is not denied that actions that apparently accomplish an end are fully describable in physical and mechanical terms; the only contention is that a special class of mechanically describable actions must be labelled 'purposive'. What is actually done is so to change the significance of the letters, p-u-r-p-o-s-i-v-e, that they become entirely misleading and had much better be dropped completely.

Thus the case against behaviorism as built up by the *Gestalt* school and by those whom Roback and McDougall represent does not seem to be acceptable. But we are not free to conclude on that account that no case against behaviorism can be built; on the contrary we should expect that the criticisms of behaviorism offered by the 'middle-of-the-road' psychologists and by those of the 'dynamic' group would be better considered than Roback's and would avoid the use of the special pleading, characteristic of the *Gestaltist* and McDougall.

In the outcome it would seem that behaviorism, despite controversies between behaviorists themselves, has a definitely recognizable position, namely the position that all human behaviour is reaction and not action, and that the reaction consists, however subtly and complexly, of mechanical movements for which purely physical factors offer a complete explanation. Individual behaviorists have special theories of their own within this framework, and as to these it is plain that there will be controversies and disagreements only eventually to be reconciled by experiments.

There are two reasons for considering the case against behaviorism as represented by the type of critic cited. In the first place, the arguments put forward by those who hold a middle ground in psychology, while they might be more impressive, are assuredly less comprehensive, since they are offered by men who admittedly are prepared to accept a great deal of the behaviorist view-point. And in the second place, we believe that the very part of behaviorism which is accepted by the vast majority of the middle-grounders is, for the purposes of our inquiry at any rate, the most important part of behaviorism, namely the proposition that a human being is in fact a physical automaton. As H. S. Langfeld put it, in delivering the President's Address to the December 1930 meeting of the American Psychological Association, "The response psychologist is strictly a monist and determinist, and in this respect is in accord with the great majority of experimental psychologists."[1] It is not because there is much disagreement upon this point among psychologists that we have presented the matter as the behaviorists approach it, but rather because they are more straightforward on the subject than their colleagues and less intimidated by its implications; and also because they are collecting by far the best evidence in modern psychology bearing on the question. Later, we propose to submit a suggestion whereby conclusive evidence can be obtained.

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[1] "A Response Interpretation of Consciousness", H. S. Langfeld, *Psych. Rev.*, Vol. 38, No. 2, March 1931, p. 90.

So let us accept the behaviorist position that men, as we find them, are response-mechanisms and that human behaviour, as it is known, is mechanically determined, to the exclusion of any outside, non-physical agency and even to the exclusion of consciousness. We come to this decision from two lines of reasoning. In the first place, there seems no real evidence against behaviorism's prime assertion except the tender-minded objection to being shocked, and this can scarcely be called scientific evidence. Secondly, since the evidence does tend in this direction, we shall be much better off when establishing our own position, in having gone the whole way with the mechanist rather than risking being upset later because we had hopefully, but unscientifically, taken it for granted that he is wrong.

CHAPTER III

INTEGRATIVE PSYCHOLOGY, OR THE SYSTEM OF UNIT RESPONSE

BUT does this mean that we are to endorse behaviorism without reservation, to go to school to the behaviorist, and to entertain the hope of contributing some day to his achievement? Let us be perfectly clear both as to what our conclusion means and as to what it does not mean.

To begin with, it does not mean giving up a single historical problem of the older psychology, even of the so-called introspectionist type. To the extent that they are real problems and not illusions due to the lack of a direct approach (few will deny that there are such things as illusions and that some of the problems of classical psychology may come under that head), the behaviorist must eventually face all of them. No behaviorist denies that there are actual events which have been called 'mental' and 'affective'; the evidence points to the fact that they are physical events and as soon as possible he must investigate their nature and relationships. This includes all the phenomena of introspection as it has been traditionally used in psychology. The only dispute is as to the nature of these phenomena, and the behaviorist has a direct technique to support his view whereas his opponent must rely upon opinion. It is hard to see what possible problem of the older psychology is not included in the behavioristic programme since the three aspects (mental, affective and conative) of human behaviour are all within its province.

On the other hand, an acceptance of this programme does definitely mean the abandonment of psychology as such. To the extent that the behaviorist can show that mental operations are not different at bottom from leg movements, the investigation of mental activities becomes a physical one exactly to the degree that it is to be strictly scientific. The manner of seeking a solution does not change the real nature of the thing to be solved; and if, as we believe, mental activities are in truth physical activities, no amount of the older verbal theorizing about them and no amount of experiments built upon such verbal theorizing, will make them anything else. It will only be an inaccurate way of getting at something which a direct physical method will more quickly and successfully approach.

But when we are investigating the physical operations of other human organisms, we are working in a field for which a perfectly good name already exists. That name is physiology, and no argument will show that behaviorism, even though it be concerned with a particular, dynamic physiology, is not included as a sub-branch under general physiology. It is no more legitimate for a sincere behaviorist to call himself a psychologist than it would be for a botanist to hang out a board announcing himself as an astronomer. This is not to deny that behaviorism is a legitimate, novel and important branch of physiology; it is merely to point out that, since the whole argument of the behaviorists is to the effect that there is no such thing as a real psychology, they should be the first to repudiate the title of psychologist.

And indeed some of them do. Says Lashley, "I must object to any definition of behaviorism which would make it more than the science of the physiology of reaction to stimulation." [1] In this connection Hunter's suggestion of Anthroponomy is directly to the point; but we must remember that Anthroponomy is a physiological, not a psychological, department of science.

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[1] "The Behavioristic Interpretation of Consciousness," K. S. Lashley, *Psychological Review*, 1923, Vol. 30, No. 5, p. 271.

"Anthroponomy is a science of human behaviour. It is not a system of psychology."[1]

The question is, must the rest of us follow the behaviorist in this repudiation? Painful or not, it may be necessary; and at all events it is plain that we must do something, for the older psychology is challenged seriously not in its details but in its most fundamental assumptions. We must examine those fundamentals anew.

The historical basis of psychology, we find, has been a philosophical dualism. We maintain that this is the only common-sense foundation upon which a practical inquiry, scientific or otherwise, can be made. To be sure, there have been the right and left wings of psychology which have embraced a psychic and a material monism respectively. As to these two forms of primitive monism it can only be said that the one is precisely as unsophisticated, mystical and impractical as the other. The only valid monism for psychology is that of the type represented by C. K. Ogden's double language hypothesis,[2] which suggests that the world as viewed psychologically and physically is a single entity perceived in two different ways and that psychology and neurology give accounts of *the same occurrences* but use different terms in doing so. The position is very close to that of Bertrand Russell, who says "that both mind and matter are structures composed of a more primitive stuff which is neither mental nor material. This view is called 'Neutral Monism'".[3]

Unfortunately, however, we have no means of approach to this fundamental, monistic reality. We must always deal either with what are here called 'mental' structures or with material ones, and we must always couch our descriptions either in psychological terms or in those of neurology. For there are no words in which to describe the alleged single event with which both these sciences have to do, no single language which we can substitute for the double language now in use. Thus, whether this type of monism may be philosophically valid or not, it can be of no practical value for practical work. The real justification for the adoption of a dualistic view-point is simply that man, with the kind of understanding he now possesses, cannot proceed practically upon any other basis.

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[1] *Psychologies of 1930*, 1930; ("Anthroponomy and Psychology," W. S. Hunter), p. 281.

[2] *The Meaning of Psychology*, C. K. Ogden, N.Y., 1926, pp. 25 ff.

[3] *Philosophy*, Bertrand Russell, N.Y., 1927, p. 292; other references to Neutral Monism, pp. 206 ff., 210, 282.

Even the behaviorists come perilously close to such an admission. Says Weiss: "The fundamental assumption of all science presupposes that individuals are able to understand each other."[1] But this is not a fundamental assumption: it is a secondary, or even a tertiary one. Beneath it lies the primary assumption of all human beings, that the world exists and that 'I' exist. However much this may be subsequently refined or modified, it is the starting point for all of us. And when I say that 'I' exist, I mean only that I am conscious. Complete unconsciousness means non-existence, so far as concerns human beings as such; indeed, it has long been believed that a human being anæsthetized in all his senses, and thus without the possibility of any consciousness whatsoever, is a dead human being. If I am conscious of anything, it matters not what, to that extent alone do I exist. If I deny that I am conscious (and this is included in the behavioristic denial of consciousness), I thereby deny my own existence, and it is difficult to see how I can even speculate, much less make investigations and present my non-existent self as a disputant in a controversy. If this be philosophy rather than science, then we shall have to make the best of it, for it happens to be also the primary justification for any science at all.

The point overlooked by the behaviorists is that they have originally chosen a special field for their investigations; and then, having apparently forgotten the limitations imposed by their own choice, they make generalizations covering the entire field but based upon results obtained in one of its subdivisions.

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[1] *The Theoretical Basis of Human Behavior*, pp. 20–1.

It will be recalled that their quite proper objections to the introspective technique necessitated, in their view, a double limitation. In the first place, they decided to base their investigations solely upon the observable behaviour of human beings; and in this view we believe that all psychologists must concur sooner or later. But their second decision, although by no means as explicit, was every bit as definite; and this was that only those phenomena which are *observable in others* were to be taken into consideration. We repeat our agreement with the behaviorist that introspection (which, as its results prove, is as subjective as any mystic's revelations) cannot qualify as a scientific tool. But we must also point out that the essential and specific phenomena of consciousness which are present even in their denial, are not observable in the bodies of others than oneself, and that they lie outside the field of behavioristic investigation in accordance with its originally announced programme. The behaviorist on his own contention is entitled to no scientific opinion in the matter.

For to choose one field and to disregard another, is not to put the latter out of existence. Yet, for some so far obscure reason, that is just what the behaviorists affect to believe. Because they may be able to explain the mechanism of the feelings and of the thought-processes such as association, rationalization, etc., in terms of physical tension and even in the electronic terms of physics, they propose to deny that there is any element of consciousness involved. But what they have shown is plain enough, namely, that in the most minutely observed behaviour no *active* conscious factor can be detected.

Thus, despite a magnificent progress, they fall into a most unfortunate quandary. They began by protesting that the term 'mind' represented an inferior, mysticoreligious concept unacceptable to science. And in the outcome the difference between their assertion that consciousness and sensation are non-existent and the Christian Science statement that pain is mortal error, becomes microscopic. Even Mrs. Eddy denied only part of consciousness.

For the sane human being (independently of his ability to observe the same phenomena in others) consciousness, including sensation, is a datum of experience far less open to doubt than the particular visual impressions reaching his eye through any laboratory instrument. The denial of consciousness comprises within itself the denial of everything else, including the original denial.

Of course the behaviorist believes as profoundly as the rest of mankind in his own existence, and his denial of consciousness, either explicitly or by definition, shows that for the second time he has become involved in a logical absurdity. His first error, we remember, is the circular one resulting from material monism, whereby he attempts to describe man in terms of the electron-proton theory which itself is constructed by man. His second mistake is to suppose that, if consciousness does not exhibit itself in the behaviour he observes in other human beings, consciousness does not exist at all.

These are defects of behaviorism, but those of classical psychology are not less apparent. Indeed, since he has uncritically accepted them, they are in part responsible for the behaviorist's own errors. And perhaps the most disastrous of them all has been the assumption that consciousness and 'mind' are identical. For, in fact, consciousness has no more to do with 'mind' than it has with the knee-jerk reflex.

Almost as bad has been the correlative idea that a non-physical 'mind' is the cause of certain organic phenomena, or, it is sometimes put, 'mind' is the determinant of human action. Even such an opponent of behaviorism as the *Gestalt* psychologist will explode this; for the 'mind' is only one part of the human being and the whole man (' mind ' plus body) must be the determinant of any one part, such as ' mind '.

Furthermore, it seems evident that the behaviorist will succeed in demonstrating that ' mind ' is no more than an abstract term which really applies to the operation of a part of the purely physical organism, whether muscular alone or muscular and neural makes no difference. And, even if he fails, there is another means by which these activities can be shown to be basically as automatic as the operation, let us say, of a printing-press. But, so far as concerns this particular matter, there is no present reason to assert that one method is better than the other, for they both lead to the same conclusion through scientifically checkable steps.

To summarize our tentative conclusions as to the nature of psychology, we have decided that for the present psychology must remain dualistic in outlook in order to accomplish practical work and that it should confine itself to the psychological half of the psychological-material duality. As a science, psychology cannot continue to be *primarily* interested in the sensory, conative, affective, or cognitive aspects of human behaviour, for these are all falling inevitably into the fields of physiology or neurology. If these traditional boundaries of investigation comprise the sum total of psychological research, then no neutral monism, impracticable for experimental problems, will avail to maintain psychology as a separate science. Only if some purely psychological activity remains, the investigation of which psychology can claim as its own exclusive territory, can it continue to assert its right of peerage with its sister sciences.

Before we proceed to a discussion of the fundamental and primary field of psychology as an independent science, we shall have, however, to examine the very latest contribution of psychology to the problem of consciousness, namely, Dr. Marston's psychonic theory of consciousness, which is part of his general system of Integrative Psychology.

In this connection we shall find it interesting as well as important to understand the background of psychological theory from which the psychonic theory of consciousness springs. This background constitutes the most recent general survey of the problems and methods of modern psychology and is known as the hypothesis of the Unit Response. In the system of Unit Response psychology we shall discover the culmination of that trend which behaviorism has popularized, the foundation of psychological investigation upon physiological fact.

It would be difficult to over-emphasize the significance of this position. During the years since psychology has been recognized as an independent science there has never really existed a psychological psychology, in the sense of a separate science employing its own specialized techniques devised in accordance with its own particular subject-matter. The technique of introspection, still presumed by some to fulfil such a requirement, is in fact no more than a speculation regarding the subject's interior experience; in its essential characteristics it does not differ from speculation regarding external events, a method employed by philosophy, but never by science. And now this former philosophical psychology finds itself confronted by a physiological rival. Linking arms with a blood-relation instead of with a comparative stranger, physiological psychology is rapidly routing the philosophical variety for two reasons: first, it is really scientific, even if not psychological; and secondly, there is actually a strong contemporary prejudice in favour of scientific method.

Equally as deterministic as behaviorism, and deriving its authority even more directly from biology (because its biology is both more comprehensive and more exact than the behavioristic), the Unit Response system represents the most successful attempt of psychology to base itself upon physiology. As the name implies, the theory is based on the concept of the Unit Response.

What is a Unit Response? Briefly, it is what occurs when a human organism is stimulated by environmental influences through its sensory apparatus. The behavioristic push-button view has made popular the notion that in the stimulus-reaction situation, it is the stimulus that is all-important. There exists an adequate stimulus for any human reaction; it is only necessary, therefore, to know what stimulus will effect the desired reaction and to apply it, in order that the desired reaction shall automatically follow. So little discretion has the human being in the matter of its own reaction, that Watson has even proposed to produce by conditioning (*i.e.*, by the proper external stimulation) musicians, painters, mathematicians, or men of affairs from any group of healthy infants. From this point of view the interior mechanisms of the human body are, in principle, capable only of responding appropriately to whatever stimuli are presented by environment.

A little closer attention to physiology, however, discloses that the behavioristic view has been somewhat hasty, that in fact it is seriously mistaken. The interior mechanisms of the human body are very different indeed from what the behaviorist assumes them to be. The human machine is by no means an inert arrangement supinely awaiting pressure upon its exterior push-buttons.

In the first place, it possesses in its turn a large set of interior push-buttons which are operated from inside by the machine itself. And what is much more surprising, it now seems that, physiologically, most if not all of the exterior push-buttons (the sense receptor organs) are subject to stimulation not only from without but also from within. To mention but one example: there are efferent (outward-bound) nerves leading to the retina of the eye, which thus is subject to stimulation from within the body itself, as well as from external sources.

Perhaps the most powerful single way in which the organism stimulates itself is by means of the constant tonic discharge to its own musculature. A continual stream of nervous impulses, self-manufactured in the motor centres, is carried over the efferent nerves to the internal and external muscles all over the body. One of the main functions of this tonic discharge is to tone up the muscles and keep them capable of resisting gravitational pull, atmospheric pressure, and similar external forces, but the discharge itself is by no means due to an automatic reaction to such influences. So far as concerns any given organism, this self-acting mechanism is inherited and functions even before birth, and if we are to assign it its proper origin, that origin proceeds not from environment but from heredity. Other inherited mechanisms that take part in the constant self-stimulation of the organism are those concerned with the maintenance of bodily temperature, blood circulation, the digestion of food-substances, and so on.

All these self-stimulating mechanisms present a double aspect. In the first place, they consist of a push-button reaction system, and this aspect is the only one acknowledged or stressed by behaviorism. But they also involve spontaneously generated stimuli for these push-buttons; such stimuli may be in the form of muscle or tissue tension or they may be in the different form of gland secretions or chemicals. And these energies obviously constitute automatic, spontaneously manufactured *self*-stimuli. Though their real significance as self-activating devices independent of external, phasic influence is ignored by the behaviorists, they have a very important bearing upon the response of the human organism.

It becomes evident, in short, that the human organism is not the helpless football of surrounding forces. It is itself a centre of force, and it is a more powerful and active one than any or all of the environmental influences that ordinarily play upon it. It, and not they, holds the balance of power in determining what its final response shall be.

We need not go to the opposite extreme to behaviorism and at once conclude that the human organism is the "captain of its soul", or anything like it. What actually takes place is a continual interaction between the organism and its environment; the environment certainly sets definite limits, but within those limitations it is the organism that preponderantly determines what the resulting reaction shall be, because it represents both the most complex and the most powerful force in the combination. Furthermore, it is plain that the organism can change a disadvantageous environment or even leave it. The *Gestalt* implication that, by some posterior magic, the final reaction between organism and environment determines both its constituent parts, may be dismissed at once. The railroad train goes where the engine pulls it, for the simple reason that the motive power does not reside in the train-as-a-whole but in one of its parts, and no sophistry about 'wholes' can alter this fact.

A Unit Response, then, is primarily a phenomenon of integration or combination. We have two factors, a dynamic, functioning organism and a set of environmental influences exercised upon it. The result, or response, is a reconciliation or integration of these two sets of forces; neither fully determines what the response shall be, but the preponderance of determinancy lies with the organism, for the reason that the structures in which the integration takes place are in the organism, are inherited by it, and are unaffected, as to their structural mechanism, by the passing, phasic influences of the external world.

It must be understood that the expression, Unit Response, is a *descriptive term*, intended to correct the behavioristic *concept* of the Reflex. Actually there is no such thing as a single, simple reflex. At any time the nervous energy of the organism is in a given state of balance. Some energy from environment, impinging upon the organism, causes this nervous balance to readjust itself. The readjustment affects some organic parts more than others, but practically the entire integrative balance is affected each time the impingement of energy from external sources occurs. This whole readjustment is termed, descriptively, a Unit Response, and this whole readjustment is, in reality, the *only* occurrence that takes place.

In theoretical terms the above criticism of the behavioristic Reflex is substantially the same as that which is offered by the school of *Gestalt*. But the *Gestalt* position, while correct in itself, is based upon untenable grounds; it is founded upon philosophical logic rather than upon empirical investigation, and there appears to be considerable doubt even as to the validity of the logic. The only empirical basis for the *Gestalt* view seems to be that there are certain phenomena in the field of perception which exhibit the major importance of the percept as a whole, as against the minor importance of the parts composing this whole percept. And of course it does not follow at all that what holds for perception must hold for the entire functioning of the organism.

It would appear, however, that the main *Gestalt* contention is based upon a philosophic proposition concerning the nature of 'wholes' as such, a proposition which is more than a little dubious. To be sure, there is a certain metaphysical relation between the whole and the part, but this relation is a far more subtle one than we find expressed in *Gestalt* doctrine and it can by no means be summed up in the crude phrase that "the whole determines its parts". Thus, while the Unit Response system agrees with the *Gestalt* conclusion regarding reflexes, it does so for a very different reason from that advanced by the *Gestaltist*.

Returning now to the reflexes, while it is true that there are none in the body, there *is* such a thing as reflex arc conduction. Reflex arc conduction is an expression referring to the way in which the central nervous system of the human body functions; but what it refers to is a mode of functioning, not a series of structures. By a process of abstraction from the actual fact of reflex arc conduction, the behaviorists have achieved the abstract concept of a series of simple reflex structures which, in fact, do not exist at all. Our recognition of their failure to exist is not due to the *Gestalt* belief that they ought not to exist, but to the circumstance that they are found in fact not to exist.

The 'reflex' concept implies that the ultimate bodily reaction is structurally predetermined just as the knee-jerk is; and this is not only misleading but is also empirically false. Even the knee-jerk varies according to what is happening in the brain and other parts of the central nervous system. But because it is an outlying part of the total Unit Response, the behaviorist can ignore the "hidden machinery" that is interposed between the reception of the stimulus and the eventual bodily reaction and, in the case of the knee-jerk, still predict the result with relative confidence.

But when we come to mental and emotional reactions, they depend entirely upon the "hidden machinery". Says Dr. Marston, "The behaviorist falsely suggests, by the concept 'reflex', that the hidden machinery in the brain centres need not be bothered with by the psychologist. Only the final bodily behaviour need be observed and tabulated—and called a 'reflex'. This is a terrible mistake, misleading psychology into an absolute blind alley, because no amount of tabulations of environmental stimuli and ultimately occurring bodily reactions will ever show any causal regularity or causal law in the more complicated reactions. The superficial coincidence of stimulus and the grosser aspects of response, in the *simpler* responses like the knee-jerk, has deceived the simple-minded behaviorist into dropping out all investigation of the hidden machinery in the more complex portions of the Unit Response."[1]

The Unit Response system, in illustration of the importance of the hidden machinery, uses the analogy of the Automat restaurant. "If you go into the Automat, and put two nickels in the slot marked 'rice pudding', nothing happens for quite a while, as far as you can observe. Perhaps you begin to think that you have lost your money. At last, however, you see the whole food carrier, inside the glass window, begin to turn. Then it turns back, and you notice, suddenly, that the door is open, and your rice pudding is forthwith presented to you. The final, observable response of the Automat machinery was the eventual appearance of the rice pudding. What went on between the moment when you dropped your nickels in the slot and the final reaction of the machine, you have no means of knowing, unless you are a specialist in Automat machinery."[1]

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[1] In a letter to the author.

Nevertheless, it is plain that these unknown operations are the most important parts of the entire process; they make all the difference between the final appearance of a rice pudding or of a ham sandwich. In any case the stimulus is the same, the insertion of a coin in a slot. The final reaction is also the same, the opening of the glass door, exposing the contents of the food receptacle. But what is obtained varies and the variation depends upon the operations of the invisible machinery that responds to all these similar stimuli.

It is the same with human beings. "Unit Responses . . . may be compared to the end-results of a mass of machinery, the internal workings of which are hidden from view by a heavy casing, the body."[2] The internal workings are very important and in large part account for the final product, which is overt or implicit behaviour. The behaviorist, in tabulating only the initial stimulus and the final reaction, leaves all these internal operations out of account, whereas the Unit Response system, while not failing to give due weight to the first and last elements of the whole process, puts the greatest emphasis upon the interior functions which, in fact, are largely determinative of the whole response. This is the main reason for the contention that the Unit Response system, with regard to physiology, is both more comprehensive and more correct than behaviorism.

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[1] *Integrative Psychology*, Marston, King & Marston, International Library of Psychology, 1931, p. 63.

[2] *Ibid.*, p. 63.

In following these details of criticism and counter-criticism we should be careful not to lose sight of the main principles under discussion. At the present point the first general principle may be summed up as follows: the behaviour of human beings consists of Unit Responses, *i.e.*, of readjustments of the whole organism to phasic stimulation; and these Unit Responses may be described as the integrative results flowing from the combination of two sets of forces, those outside the organism (originating from environment) and the more powerful, internal forces (originating spontaneously within the organism itself).

The human organism, however, is complicated and a Unit Response is divided into parts. The whole response is taken as a unit, not because it is indivisible or because none of its constituents are more influential than others in determining what the entire unit shall be. It is almost as arbitrary to take a single response as a unit, as it would be to take one of its elements, for no single response ever actually exists alone. While the end-elements of one response are occurring, the initial elements of another are present, and the intermediate elements of still others. Let us see what these various elements are.

It will be necessary in detailing the part-reactions that go to make up a Unit Response to employ certain technical terms. They are as follows:

A 'receptor' is a sensory end-organ; a specialized structure of the body, so developed as to react selectively to a particular kind of stimulation, for example, heat vibrations, light 'waves', or mechanical pressure.

An 'afferent nerve' is composed of neuronic cells, and leads from the receptor to the brain centres either within the spinal cord or within the head brain.

A 'brain centre' is a group of nerve cells within the brain. There are three main kinds of such centres: the sensory centres, where the impulses from the receptors are first received; the correlation centres, where the impulses are next switched about and combined; and the motor centres, whence the impulses finally issue over the motor nerves.

A 'synapse' is a place where the adjacent nerve cells are not in their usual continuity, but are separated from each other by their own outside coverings or membranes.

A 'psychon' is that part of a synapse which is energized whenever an impulse passes across the synapse from one adjacent cell to the next.

A 'connector nerve' leads from one set of brain centres to another.

An 'efferent nerve' is a motor nerve leading from the motor centres to the effectors.

An 'effector' is a gland or muscle activated by impulses carried over the efferent nerves.

We may now list the part-reactions that together compose a single, complete Unit Response. There are no fewer than eleven of them:

"(1) bodily tissues react, mechanically or chemically, to an external stimulus;

(2) the appropriate receptors within these tissues, react;

(3) the efferent nerve cells, leading inward from the receptors, react;

(4) the psychons within the sensory centres to which these nerves lead, are activated;

(5) connector nerve cells leading from the sensory to the correlation centres, react;

(6) psychons in the correlation centres to which the connector cells lead, are activated;

(7) connector nerve cells, leading away from the correlation centres to the motor centres, react;

(8) psychons in the motor centres are activated;

(9) efferent nerve cells, outward bound from the motor centres, react;

(10) effector organs (glands and muscles) react;

(11) bodily parts or tissues connected with the effectors, react." [1]

This whole process, from the first part-reaction of stimulation to the final part-reaction of the effector, is arbitrarily taken as a unit by Integrative Psychology for the reason that it is convenient to investigate and describe human behaviour in terms of such units; they compose the single events into which human behaviour is most usefully analysable.

The key to understanding the Unit Response is the concept of integration. We must remember that the organism, when stimulated from outside, is not dead, or even inert. It is a going concern, already functioning at its customary rate, and any impulses originating from the outside *must*, if they are to have any effect at all, be received into the operating machine and there combined with those activities already proceeding in it. Of the latter there are two classes, those combinations or integrations resulting from previous external stimulation and, further, the constant impulses of the organism's own self-stimulation.

Since integration does not take place all along the line of the part-reactions that make up the Unit Response, but only at certain specific points, it is plain that these points must be crucial in deciding the response. As set by the structure of the human nervous system, it is only where the nerve cells terminate at a synapse that different impulses or groups of impulses can be mutually combined. Although in the case of a complexly developed receptor like the eye there are synapses just behind the retina, the general rule is that synapses are found only in the central nervous system, *i.e.*, the spinal cord and head brain.

Thus in the sensory centres the entering impulses from the receptors all over the body are sorted out and integrated with the other impulses already present in these centres when they arrive. They are then combined into percepts (images of objects) and, having now reached the correlation centres, enter upon an extremely complicated series of integrative combinations underlying concepts, abstractions, and so on. The results of the last process, reaching the motor centres in impulse groups, must here once more be combined with impulses already present.

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[1] *Integrative Psychology*, p. 316.

All the rest of the Unit Response is mere automatic transmission, but at these three mentioned places the characteristics of the response are decided. In the sensory centres is determined how much of the incoming stimulation will be allowed to affect the response at all, for it is quite possible, and frequently happens, that the entering impulses are completely damped, or 'inhibited', at the synapses. In the correlation centres the already selected sensory integrations are further selected and combined with the impulse groups there present, and it is decided what modifications of the current situation shall take place. And in the motor centres is determined, by a further process of selective integration, just how much of the response shall appear in overt behaviour.

Now we may be said to have completed an outline of the first and main principle introduced by the Unit Response system. To our previous summary of the Unit Response as an integrative phenomenon occurring between environmental forces and the more powerful organic forces of the individual, we may now add that the crux of this phenomenon is to be found in the synaptic processes within the organism, for there the threefold response is actually determined.

It can hardly be doubted that the Unit Response view has effected an advance in psychological theory. It has disclosed the behavioristic over-exaggeration of the stimulus and the artificiality of those strings of purely conceptual reflexes which could never have been investigated in detail because they do not exist. At the same time it has corrected the exaggerated *Gestalt* view concerning the metaphysical importance of the whole, by showing that the whole response (or readjustment of the whole body) is indeed the only thing that occurs, but that in addition, within this whole response, there are really three part-reactions that are primarily determinative. On the positive side it has resolutely faced the fact of the great complexity of the human organism; but it has presented an outlined pattern of that complexity which shows it to be governed by the laws of integration, and furnishes much guidance for more detailed investigation. If psychology fails to follow up the clues for future work contained in this fresh and, from the physiological standpoint, truer outlook, it will fail to take advantage of a major opportunity.

CHAPTER IV

THE PSYCHONIC THEORY OF CONSCIOUSNESS

If human behaviour is composed of Unit Responses and if, in the preceding section, without any reference at all to consciousness, we have briefly described what such a response is and how it is determined, can we say with the behaviorist that there is no need to postulate the entrance of any conscious factor in the process beginning with stimulus and ending with final reaction? If we had never heard of consciousness, we might answer that certainly there would be no need to postulate it. But consciousness is not quite in that position; it is a fact given and an inseparable part of the problem to be solved.

To dismiss a prime element of a set problem on the ground that what we have failed to explain is an unnecessary postulate—since we have explained everything else—is like solving an equation by dropping one of its most significant terms. In the present instance that term cannot become zero unless the equation itself reduces to zero equals zero. Since Unit Responses are accompanied by consciousness as a fact, not as a postulate, it becomes in the highest degree necessary to account, not for this postulate, but for this fact.

It may be something of a shock for the lay reader to discover that so obvious a situation stands in need of amplification. But should the reader chance to be a professional psychologist, we may suspect that he will view the foregoing paragraph with some degree of doubt. The trouble seems to be largely this: that whenever any question of accounting for consciousness has arisen in the past, the answer has always been that introspection must be employed. And, because many leading psychologists have now been persuaded that the introspective technique is untrustworthy, a great deal of the current objection to researches upon the nature of consciousness is directed rather against introspection than against consciousness itself. Few appear to have guessed that any other approach than the introspective is possible, although in truth two quite different methods of investigation are open. One of these methods we must now discuss.

Integrative Psychology is an objective science and as such must outlaw the subjectivity of introspection. In fact, we find it said in this system that "not only is it (introspection) theoretically a prejudiced and unscientific technique, but its results, embodied in thousands of pages of psychological literature, prove it, in our opinion, to be as self-contradictory and unreliable as it is charged with being".[1] An objective science demands an objective method, but just exactly what is meant by an "objective science"? As regards psychology the current meaning seems to be as follows: it signifies that any proposed investigation shall be conducted from a standpoint exterior to the subject investigated. This seems to require that the psychological investigation of the human being or organism shall be made by a person other than the one investigated, preferably by a trained psychologist who can be trusted to pursue his inquiries with impartiality, without hopes or fears or any axe to grind in the matter of discoveries. He can also make his investigations without fear of altering in the process what he is investigating,—a thing, it is alleged, which the subject cannot do for himself.

From such a point of view, where are we to find in the human organism something tangible (for this type of psychology deals only with tangibles) corresponding to the subjectively recognized phenomena of consciousness? Several answers are already in the field.[2]

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[1] *Integrative Psychology*, p. 301.

[2] See article on "Consciousness, Physiology of," W. M. Marston, *Encyclopædia Britannica*, 14th edition.

First, there is the physiologists' brain cell theory. These scientists, at any rate, seem to entertain no doubt of the actuality of consciousness. They assert that consciousness is closely connected with the human organism, and the question is where this connection is made. Their theory is that certain specialized cells exist in the brain and that consciousness results from the stimulation of these cells by the interior activities of the organism. Whether such a result follows from a connection thus made between the material realm in which the cells reside and an immaterial or 'spiritual' realm of consciousness, or whether the activation of the cells itself constitutes consciousness, remains a moot point among physiologists; their different opinions probably reflect no more than their personal vitalistic or mechanistic prejudices. In any event the theory suffers from a somewhat serious handicap—none of these hypothetical cells has ever been discovered. Thus the theory remains a mere speculation.

A more elusive doctrine is held by some neurologists, with whom certain psychologists join. This is the theory that consciousness is a phenomenon of the transmission of the nervous impulse over the nerve trunks of the body. Consciousness is here supposed to consist of a kind of electrical aura surrounding the nerve during the period of its activation. The hypothesis perhaps sprang from the fact that the propagation of the nervous impulse along the nerve pathways of the body is in the form of an electro-chemical disturbance of high speed and subtle nature—that is to say, the sort of organic reaction in which consciousness might be expected, since consciousness obviously could not be equated with the grosser forms of physical reaction.

But this hypothesis also encounters grave difficulties, among which are the following:

(a) that the same nerve trunks are used for several different purposes, e.g., pain, cold, etc.;

(b) that different neurons (nerve cells) must be involved in processes which yield the same elements in consciousness, *e.g.*, a centrally and a peripherally aroused sensation of red, as in the image of the colour and in its direct perception, cannot involve the same neural pathway;

(*c*) that the phenomena of conduction that correspond to those of consciousness, such as after-discharge, temporal summation, threshold variability, and so on, are not neuronic, but synaptic;

(*d*) that what corresponds to the continuity of consciousness takes place not in the neurons, but at the synapses;

(*e*) that only on the James-Lange theory of emotions as visceral sensations could this hypothesis account for emotional consciousness. But Sherrington's trans-section of the vaso-motor nerves in the dog,[1] Goltz' work on emotional patterns,[2] and Cannon's investigations of bodily and visceral changes during emotional states,[3] to mention but a few such evidences, have shown conclusively that emotions cannot be either visceral sensations or the sums of such sensations.

When we add to all this that here again we have only another theory for which no proofs can be advanced, it becomes evident that this neurological hypothesis must be abandoned as merely another interesting speculation.

From the failure of the preceding doctrines it does not follow that we must abandon our search for some descriptive account of consciousness. The system of Integrative Psychology offers us the psychonic theory. But before entering upon this, let us define the object of the search a little more clearly.

Looking for consciousness within the organism, just what is it that we expect to find? A soul? A region of 'experience'? An indwelling motive power, or an inner dynamic force? What?

It is a virtue of "objective science" that it brushes aside all such vague nebulosities. Before setting about the solution of a problem, it insists that the problem be stated in definitely understandable terms. This may be irksome, but for our purpose an insistence upon concreteness constitutes no mean advantage. We do not wish to be deceived by our own thoughts.

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[1] "Experiments on the Value of Vascular and Visceral Factors for the Genesis of Emotion", C. S. Sherrington, *Proc. Roy. Soc.* 1900, LXVI, 390.

[2] "Der Hund ohne Grosshirn", F. Goltz, *Arch. für d. gesam. Physiol.*, 1892, LI, 570.

[3] *Bodily Changes in Pain, Hunger, Fear and Rage*, W. B. Cannon, 1920, N.Y.

How, then, in definite terms, can the consciousness we are seeking, be characterized? In company with the neurologist, the psychonist sets out to discover within the organism some highly complex or intense form of energy that may be associated with conscious phenomena, perhaps a force of higher vibration-rate than forces connected with less complex kinds of organic activity than conscious ones. Mechanical, chemical, and the electrical energies of the nervous impulse are all involved in activities of an unconscious sort, and this circumstance itself raises doubt whether any of them can underlie consciousness. But if some further, more complex kind of force were to be discovered in the functioning organism, it would not be unreasonable to suppose that such a force had possibly to do with consciousness.

Moreover, it appears quite possible to characterize what we mean by consciousness in certain definite ways. From the standpoint of subjective experience, from which we must start (since this is part of our set problem), we can all agree that the greater the consciousness of a given experience:

(1) the greater the slowing-up of reflex action;
(2) the greater the after-discharge or hang-over;
(3) the greater the difference between the rhythm of the stimulus and the rhythm of the response;
(4) the greater the amount of temporal summation;
(5) the greater the amount of fatigue;
(6) the smaller the correspondence between the intensity of the stimulus and the intensity of the response;
(7) the greater the ease of inhibition;
(8) the greater the ease of interference or interruption;
(9) the greater the ease of interference by drugs;
(10) the greater the degree of variability of the response.

For the verification of the above principles no introspection is necessary; anyone's experience, consulted by the ordinary processes of memory, will confirm their truth. Is it not plain that the finger and arm reflexes made use of in piano playing proceed more slowly and haltingly when one is playing a new piece, that is to say, when more conscious attention is involved? Do we not feel more fatigued after an attempt to master the Relativity Theory than after reading the morning paper? Similarly, we know that a series of noises, entirely insufficient to interrupt an habitual occupation, will render it impossible to continue a highly conscious one; and in like manner, if the reader cares to consider the above points one by one, he will find that his experience confirms them.

There is a great deal of more careful evidence for them throughout the pages of psychological literature. We can cite only a few typical instances of it.

Thus Dolley found, in reaction time experiments, that his reaction time was longer when his attention was directed to the response (movement), for he had been in the habit of directing his attention to the stimulus. Also the reaction time was found to be shorter when the movement was made with the hand to which the stimulus (shock) was applied, because "a person will without reflection withdraw his hand when it touches a hot surface".[1] This shows that the less consciousness the shorter the reaction time, and the more consciousness the greater the slowing-up of the response.

C. G. Jung, in investigating word association, found that certain stimulus-words provoked delayed reaction and that 85 per cent of these words were emotional.[2] That is, the greater the (emotional) consciousness, the greater the slowing-up of reflex action.

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[1] *On Reaction Times and the Velocity of the Nervous Impulse*, J. McK. Cattell and C. S. Dolley, Nat. Acad. Sciences, p. 410.

[2] *Studies in Word Association*, C. G. Jung, N.Y., 1919, p. 265.

Similar evidence could be cited for all the ten listed characteristics. But it may be objected that all this is merely subjective evidence and that our "objective science" cannot base itself upon these considerations. Such a view, however, would seem a trifle unfair. So far we are concerned not with the conclusion of the search, but the beginning; and all that has been done is to reduce what is to be sought for, from the indefinite to the concrete. The listed characteristics offer a descriptive definition of consciousness in significant terms. Insofar as we mean by consciousness anything definite enough to serve as the basis of an objectively scientific investigation, it is maintained that the collected points sum it up. They are, of course, subjective. But it is foolish to deny that our experience sets our problems; if not, what does set them? And in our present terms 'experience' and 'subjectivity' are synonymous. The scientific approach, however, is the attempt, not to set the problems, but to solve the problems objectively.

With the set problem thus carefully defined, it becomes a question of discovering something within the human organism corresponding to our definitely characterized consciousness. "If, then, it proves possible to isolate a distinctive . . . structure, capable of undergoing modifications corresponding in time and place with all 'conscious' elements noted, it seems logical at least that the totality of behaviour of such . . . structure *is* 'con-

In seeking such a structure within the organism, some guidance may be gained from the nerve trunk conduction theory of the neurologists, or more precisely, from certain of the objections to which that theory is liable. The fact is that the phenomena of consciousness seem more comparable to those of reflex arc conduction than to those of the simple transmission of the nervous impulse. We may ask then what is the neurological difference

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[1] "The Psychonic Theory of Consciousness", W. M. Marston, *J. Abnor. & Soc. Psych.*, Vol. 21, No. 2, July 1926, p. 165.

between these two kinds of conduction; and we find that the difference consists in the presence, within the reflex arc, of various synapses, which are absent from the nerve trunks themselves. According to neurology, these synapses introduce into the principles of nerve-impulse conduction certain modifications, and these modifications are listed by Sherrington, a neurological authority, as follows[1]:

(1) latent period;
(2) after-discharge;
(3) loss of correspondence between rhythm of stimulus and rhythm of response;
(4) temporal summation;
(5) fatiguability;
(6) interference with grading of intensity;
(7) inhibition;
(8) variability of threshold value of the stimulus;
(9) susceptibility to drugs;
(10) mutual facilitation and conflict of impulses.

But here we have a really startling resemblance, point for point, to the descriptive definition of consciousness, outlined above. The nerve trunk never fatigues; fatigue is a synaptic phenomenon. Temporal summation is the successive addition of similar sub-threshold effects until, as a result of such addition, the threshold is crossed and a definite response obtained. Conscious phenomena also exhibit temporal summation, as for example, when constant reiteration (in modern advertising) finally brings about a conscious persuasion for which no other cause exists than the continual repetition.

After-discharge seems to be an effect at the synapse much like that of temporal summation, inasmuch as bits of energy seem to be collected at the synapse and thereafter discharged in particular amounts. On the conscious side, we have the phenomenon of after-discharge as a sort of continuing reverberation or echoing of a highly conscious experience after that experience has ceased; in other words, highly conscious experiences are not only more memorable but are more insistent in forcing their memories upon our attention, than less

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[1] *The Integrative Action of the Nervous System*, C. S. Sherrington, 1920, p. 14.

Differences of intensity of stimulus can be transmitted through the nervous system only by means either of the nerve fibres involved in the transmission or by means of the rhythm of transmission. Thus the more synapses in the pathway, the more interference with the transmission of intensities and the greater the difference between the intensity of the stimulus and the intensity of the response, just as in the phenomena of consciousness.

To sum up the present psychonic argument,

if we may let A equal consciousness,
B equal the descriptive definition of con-

C equal synaptic function,
D equal the descriptive definition of synaptic function;
then B may be substituted for A,
and D may be substituted for C;
but B equals D,
and since A equals B
and C equals D,
therefore A equals C.
Thus consciousness equals synaptic function.

We may next ask what kind of energy is manifested at these places, the synapses, where consciousness occurs. As this question is close to the heart of the whole position, we shall have to examine it with some attention. We must inquire into the structure and physical operation of the synapse.

Says Sherrington, "It is generally admitted that (at the synapse) there is not actual confluence of the two (nerve) cells together, but that a surface separates them, and a surface of separation is physically a membrane." [1]

Says Herrick, another neurologist, "In most groups of animals above the coelenterates the cells of which the nervous system is composed (or some of them) are related to each other quite differently from those seen in the network of protoplasmic strands which compose the nerve net . . . there is a membrane separating the neurons . . . the presence of such a barrier at the synaptic junction does not imply that the neurons are not in protoplasmic continuity, for the separating membrane itself is living substance. What it does indicate is that there is a change in the physico-chemical nature of the conducting substance at the synaptic barrier. Langley has termed this barrier junctural tissue and of its great physiological importance there can be no doubt."[1]

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[1] *The Integrative Action of the Nervous System*, p. 16.

In the words of Dr. Marston, the originator of the psychonic theory, "Similarly, as we have seen, there can be no doubt of the psychological importance of this junctional tissue. I submit the suggestion that the totality of changes occurring upon this surface of separation between any two neurons, whenever the junctional membrane is continuously energized, from the emissive pole of one adjacent cell to the receptive pole of the next, intrinsically constitutes consciousness."[2]

From this point of view consciousness is a form of energy or force; and is specifically that kind of energy that is manifested at the separating surfaces of the synapse when the nervous impulse passes across it during the passage of the impulse from one cell to the next. The psychonic theory takes its name from the fact that a part of the synapse, namely, either the glious intercellular substance or the two adjacent cell membranes, when in this state of energization, is called by Dr. Marston a 'psychon'. According to him, the principal function of the psychon is consciousness.[3]

Although, as we have seen, there is entire agreement as to the function of the synapse in nerve-impulse conduction, it must be noted that there is no such unanimity as to its physical operation. We have already quoted Sherrington's opinion that the synapse is physically a membrane. Among neurologists this view is endorsed by Bartelmez, who has studied the Mauthner's cells under the microscope by means of staining. He reported that the knob-like endings of the axone fibres of the eighth nerve were in contact with the surface of the adjacent cell. He saw a distinct membrane over the root fibres, and when the lateral dendrite was cut squarely, a smaller membrane could be distinguished around it. He also found that the two synaptic membranes had to be energized before conduction could continue through the recipient neurone.[1]

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[1] *The Neurological Foundation of Animal Behavior*, C. J. Herrick, 1924, pp. 104, 114, 115.

[2] "The Psychonic Theory of Consciousness", W. M. Marston, *J. Abnor. Soc. Psych.*, July, 1926, Vol. 21, No. 2, p. 165.

[3] *Ibid.*, p. 166.

On the other hand, Marui, who used different fixing and staining solutions, was able to trace tiny connective fibres emerging through the outer membrane of the club endings and in contact, at least, with the adjacent neurone.[2] Bartelmez later criticized this finding on the ground that Marui had used formol in his solutions and that this substance was responsible for the appearance of the minute fibres, which were, therefore, arte-facts.[3] (That is, they were not native parts of the cell itself.)

Sherrington bases his synaptic theory upon Bartelmez' view,[4] but Forbes, another investigator, takes Marui's view. His theory suggests that the synaptic phenomena are due to the fact that at the synapses the nerve-impulse is compelled to communicate its energy through intercellular fibres of much smaller dimensions than the nerve trunk fibres.[5]

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[1] "Mauthner's Cell and the Nucleus Motorius Tegmenti", G. W. Bartelmez, *Jour. Comp. Neur.*, 1915, Vol. 25, pp. 87–128.

[2] "Studies from Neur. Lab.", Henry Phipps Psychiatric Clinic, Johns Hopkins Hospital; K. Marui, *J. Comp. Neur.*, 1918, Vol. 30, pp. 127–58.

[3] "The Morphology of the Synapse in Vertebrates", G. W. Bartelmez, *Arch. Neur. and Psychiatry*, Vol. 4, pp. 122–6.

[4] "Remarks on Some Aspects of Reflex Inhibition", C. S. Sherrington, *Proc. Roy. Soc.*, Vol. XCVII, 1925, 519.

[5] "The Interpretation of Spinal Reflexes in Terms of Present Knowledge of Nerve Conduction", A. Forbes, *Physiol. Rev.*, Vol. 2, No. 3, July 1922, pp. 361–424.

These investigations have been noted in order to indicate that the proponents of the psychonic theory are not unaware of the present differences of opinion regarding the physical structure of the synapse. Nevertheless, these differences cannot be held to weaken the psychonic theory itself. As Dr. Marston remarks, "The exact structural description of the connective synaptic tissue must, it would seem, be left in some doubt at present. I believe that it will make little difference to the theory of consciousness herein proposed (the psychonic theory) whether the junctional tissue be thought of as a pair of sheet electrodes formed from the surface membranes of the adjacent fibres, or whether the junctional tissue may eventually be described by comparison with the tungsten filaments of electric lamps. Whichever observation may turn out to be most accurate, the evidence for placing *consciousness* at the synapse remains unchanged."[1]

These two theories may make some difference, however, in the way in which we must think of the energy manifested at the synapse during the passage of the impulse. Let us suppose, in the first place, that the impulse jumps from one cell to the next across the intervening double layer of cell membranes; this will be the sheet electrode theory.

To take a greatly simplified analogy of this case, we may think of the nerve trunks of confluent cells on both sides of the synapse as copper wires over which an electric current (the nerve-impulse) is conducted. We may think of the synapse, where the two cell membranes intervene, as represented by a sheet electrode of some metal lower in the electro-motive series than copper and thus possessing to a lower degree the property of electric conductivity; the copper wires terminate on opposite sides of this electrode. Thus the electrode constitutes a sort of barrier, and in order that a current may pass from one wire to the other a higher degree of electrical force must be present than suffices for the passage along either wire. When this is not already a property of the current or impulse, it may be obtained by a sort of banking-up of the energy-pressure against the electrodic or synaptic barrier. And accordingly, when the current or impulse does eventually pass the barrier, a higher or more intense degree of energy will be manifested than takes place within the wires or nerve trunks.

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[1] *Emotions of Normal People*, W. M. Marston, International Library of Psychology, 1928, p. 51.

On the alternative theory that extremely minute fibres form the actual connection between the adjacent synaptic cells, that is, on the tungsten filament theory, we are dealing at the synapse with a conductor certainly of much smaller dimensions than, and possibly of different physical characteristics from, those which form the rest of the circuit. It will, therefore, be as if the same amount of water per second were forced through a narrow pipe as had previously been carried through a much larger one. Just as novel phenomena occur at the tungsten filament, the resistance causing incandescence that in turn gives off light, so at the synapse the increased resistance offered by the much smaller conductor will occasion a quite different set of physical phenomena from those occurring over the nerve trunks. And these phenomena will be based upon the manifestation at that point of a higher or more intense degree of energy.

In respect of the character of the physical energy involved, the two theories turn out to possess much the same general implications. This is because the fundamental modification introduced by the presence either of an electrode or of a small filament consists in an increased resistance to the passage of the current. Thus the physical energy manifested at either of these mechanisms will be more intense than elsewhere.

It will be remembered that the psychon is that part of the synapse that is energized during the passage of the impulse. So either the psychon will be that portion of the double layer, composed of the adjacent cell membranes, through which the impulse immediately passes, or it will be the small fibres through which the impulse crosses over between the adjacent cells at the synapse. In both cases, as we have seen, the energy there manifested will have the same general characteristic; it will be of a higher or more intense degree than in the nerve trunk, since this is necessary in order that it cross over at all. Such energy is given the special name of psychonic energy, and it is said that "psychonic energy is consciousness".[1]

But this psychonic energy must not be thought of as a simple uniform type of energy, similar to that of the ordinary electric current. On the contrary, psychonic energy is of a very complex kind and its manifestations are of a correspondingly varied nature. It is a physical energy and the reasons for its complex character are, of course, purely physical also. One such reason is the fact that the cells composing the sensory, correlation and motor centres in the human organism differ from each other physiologically and these characteristic differences are reflected in the synapses formed between these classes of cells, respectively. Thus sensory, correlation and motor psychonic energies, while still within the general psychonic type, will actually differ from each other as physical forces. From the side of subjective experience, these differences will appear qualitatively as sensory consciousness or sensation, correlative consciousness or thought, and motor consciousness or motation (affective tone and emotion). Of course, we must not confuse motor consciousness with kinæsthetic sensations resulting from contractions of the muscles and movements of the body; feelings and emotions are the psychonic energy arising at the psychons of the motor centres in the head brain, long before the resulting impulses are carried out over the efferent nerves to effect muscular movements.

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[1] "Motor Consciousness as a Basis for Emotion", W. M. Marston, *J. Abnor. & Soc. Psych.*, Vol. XXII, No. 2, July–Sept. 1927, p. 144.

Another reason for the heightened complexity of psychonic energy is the fact that at the synapse various nerve impulses or groups of impulses are combined with each other and form mutually facilitating or inhibitory integrations. In fact, all the ten effects of synaptic conduction, previously listed, take place at the psychon and we must suppose that these fundamental effects are represented by the actual constitution of the psychonic energy there manifested.

It is perfectly plain that the combination or integration of two nervous impulses as they cross the psychon *is* in itself the psychonic energy thus arising. Subjectively these complexities are experienced as qualitative differences between sensations, *e.g.*, taste and colour, between cognitive elements, *e.g.*, concepts and abstractions, and between emotions, *e.g.*, appetitive-type and love-type emotions. The relations which the *elements* in an integration bear to each other, of greater or lesser, alliance or opposition, account for further subjectively qualitative differences, as for example, between red and blue, or between anger and pity. Without going into any lengthier discussion of this theory, we may well conclude that the complexity of conscious experience is fully mirrored by the complexity which we must necessarily attribute to psychonic energy.

It is now evident where consciousness, defined as psychonic energy, enters the Unit Response and how important a part it plays therein. At the psychons of the sensory, correlation, and motor centres the characteristics of the response, both functional and physical, are determined, and the integrations which are the determinants, are also the psychonic energies arising at these psychons; those energies, in turn, are consciousness. Consciousness, as thus defined, determines human responses; not from outside but from inside, because consciousness is itself at the very heart of the response. Nor is this type of determination to be wondered at, since psychonic energy is the most intense, the most complex, and the most powerful force taking part in that interplay of environmental and organic forces that constitutes the response.

To summarize briefly, the phenomena of consciousness and those of synaptic function in the conduction of the nerve-impulse correspond, point for point, in their most prominent characteristics. It is at the synapses that the nature of each Unit Response is determined and here also, due to the attributes of the synapse, a more intense form of energy appears than elsewhere in the human organism. Since their respective characteristics are identical, it would seem that the nature of psychonic energy corresponds to that of consciousness, and thus that psychonic energy *is* consciousness.

Before passing on, we may usefully recall the more important modifications of psychological theory necessitated by the Integrative theory just outlined.

We remember that Integrative Psychology differs from introspectionism in that it refuses to employ subjective speculations and bases itself entirely upon the 'objective' findings of physiology and neurology. It resembles somewhat the *Gestalt* view in insisting that the whole, dynamic Unit Response, in which each part has a bearing and an influence upon the other parts, is what is of significance for psychology. But it differs sharply from *Gestalt* in refusing to exaggerate a valid view-point until it becomes not only bad science, but even bad metaphysics. A Unit Response is a whole, certainly; but within that whole various parts may as certainly be distinguished. It is not only proper but necessary to deal with these parts separately, in order to discover what respective influence and importance they may have. Among the part-reactions composing the response those involving psychonic energy (consciousness) are the most important and frequently determine the whole response. In a strictly limited sense it is true that the whole determines its parts; and it is equally true that the most powerful force taking part in a combination of forces preponderantly colours the whole combination of which it is a member. If this fact is lost sight of, a lopsided view must result.

The Integrative theory also differs radically from the behavioristic. It dispenses with the luxury of denying the existence of consciousness, whose only offence is that the problems raised by its existence have not yielded to the first attack upon them. On the contrary, it offers a theory of consciousness in physiological and physical terms.

It is in further contradiction to behaviorism in describing human responses as primarily determined by the organism and not simply by the external stimulus. Behaviorism, it is true, appeals to the authority of physiological fact, but to a rather crude account of it. It is precisely by a more careful and comprehensive investigation of physiological fact that the Integrative system has reversed the earlier behavioristic finding.

We have devoted particular attention to the Integrative system, in the first place, because the standpoint of this school is novel to the general reader, and, in the second place, because the theory appears to be the most comprehensive and successful expression of that physiological position which is rapidly coming to be accepted in all modern psychology.

CHAPTER V

INADEQUACIES OF THE OLDER AND MORE RECENT POSITIONS

In our earlier discussions we found more than one reason for regarding the question of ' I ' as important and worth personal investigation. But there is another and a deeper reason for every individual.

In the absence of a correct recognition of what we really are, you and I must of necessity lead meaningless lives, our energies expending themselves upon a series of occasional goals or perchance so concentrated upon a single object that the struggle exhausts our lives together with whatever opportunities living gives. Have such pursuits into which we blindly enter, any rational relation to what we essentially hope to become, to what, as human beings, we have a right to demand of that opportunity which is called being alive?

Setting fancy aside, it is plain that what we may reasonably hope to become, what we may humanly demand of life, is entirely dependent upon what we humanly are. An animal may have potentialities denied to us; an angel (for all we know) may have others. What is of prime importance for us is human potentiality, and this depends not upon what we hope or guess we are, but upon what in truth we really are. Unless we know our own fundamental characteristics, how can we be more than dynamos in an incomprehensible powerhouse or blinded players in a game of which we understand nothing? Above all, where will be that final intention, that individual self-recognition, that alone can give some degree of unity to an otherwise purposeless approach to living's conclusion?

It will be remembered that we decided to look into this matter and to see if somewhere, concealed perhaps by the confusion of the modern hubbub, an answer lay near at hand.

First we inquired of religion and received no very intelligible reply. Worse, this unsatisfactory reply was not offered as a starting-point for investigation, but as its end. In other words, Authority. But Authority, as a substitute for our own efforts, at least for our own efforts to confirm information received, is not likely to strike us as either reasonable or praiseworthy. Surely credulity and laziness are not the crowning glories of mankind. If there be morality in an objective sense, then there is intellectual morality, too. It can be nothing less than immoral *for* a human being to adopt an attitude of uncritical acceptance toward questions as inescapably his as the question of his very nature. Revelations apart (we put them on one side because we have not been favoured with them), it is our intention to accept no substitutes for our own achievement, or our *own* confirmation, of a solution. Hence we turn to science, where *our* resolution is acknowledged and even welcomed.

Obviously the science most closely concerned with our special question is psychology, but unfortunately from this source we receive no direct reply. It may be that psychology has not yet got down to this matter; or, again, that the various psychologists believe that the answer is implied in the general positions they hold. We also discover that there is no one psychology but that not a few different ' schools ' of psychology exist, and that none of them can properly claim to be *the* legitimate psychology. In consequence we have found it necessary to inquire into the positions of these various schools, or rather into those of their doctrines that appear to bear upon our problem.

Introspectionists, psychoanalysts and pan-psychists assure us that what is most essentially human in us is a ' mind ' and that this ' mind ' can be investigated without reference to the physical phenomena of our bodies. But in taking leave of measurable physical phenomena we find that we have also taken leave of measurement itself and thus appear to have abandoned the possibility of independent verification. Speculation, in fields where measurement is inapplicable and where plausibility presents the chief criterion, is not exactly what we nowadays expect to yield scientific results.

Moreover, in the technique of introspection, which is relied upon to furnish information concerning the nature of the 'mind', we discover a most unreliable instrument, the weakest of reeds. The data resulting from the use of introspection are not self-consistent, they are self-contradictory. Only in the simplest matters (in which, since everyone is already fully acquainted with them, no investigation is necessary) does introspective agreement occur. In more doubtful and subtle cases everyone sees in the workings of his own 'mind' just what he expected to see before he looked; and we are back in the domain of unverifiable assertion. From a scientific point of view there seems to be something seriously wrong in introspectionist psychology.

No doubt the non-professional reader, upon whom, in his university days, conclusions of the older introspectionism were forced, is surprised to learn that the classic notion of a 'mind' (soul) as the directing force in human behaviour has simply vanished. Careful exploration of those vague regions where the Will was formerly supposed to hold undisputed sway, has disclosed—just a void.

The disappearance under scrutiny of the directing 'mind' really began with the abandonment of that element of faculty-psychology called Will, which for some time now "has ceased to be a profitable concept in psychology".[1] There followed the hypothesis of 'ideas' (of purpose, etc.) which now "has long outlived its usefulness in science, however convenient it may be in popular usage ".[1] When we reflect that these words are quoted from Professor McDougall, the leading advocate of Purpose, we must recognize that here is an end not only of Will but of 'mind' as the director of human behaviour.

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[1] "Men or Robots?" Wm. McDougall, *Psychologies of 1925*, p. 276.

Following the substitution for Will of the "idea of purpose", came yet another substitution; in place of these "ideas of purpose" we were offered "feelings of conation" (*i.e.*, of striving or effort). It now seems probable that conation is no more than the foggy awareness on the part of the subject of various kinæsthetic or muscular sensations, which of course are automatically controlled events; and the Unit Response psychology defines purpose itself as a special kind of awareness of relationship, depending upon psychonic integrations between motor and correlation impulses. At the end of it all we are left with the feeling that the only result has been to explode the superstition that human beings control their own actions through the exercise of Will.

But if introspectionism and its works appear unacceptable those hearty opponents of introspectionism, the behaviorists, seem to stand upon the more solid ground for which we search. Let us frankly admit, they say, that we have been following the will-o'-the-wisps of speculation and personal conviction, faith no less; let us make a fresh start in a common-sense and more scientific way.

The behaviorist sets out to answer two questions: given a set of external stimuli and a human being, what reaction on the part of the human being will take place; and, given a human being and a desired reaction, what set of external stimuli will necessarily evoke that reaction? A considerable progress has been made in answering these very complicated questions, especially in the case of young, 'unconditioned' infants; and the concept of the human being as an automatic responder to external stimulation, the concepts of the conditioned reflex and the overwhelming importance of the stimulus, have received proportional confirmation.

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[1] "Man or Robots?" Wm. McDougall, *Psychologies of 1925*, p. 276.

We have seen how the behaviorists have gone on to the successful assertion that there is no need to postulate the entrance of any non-automatic factor in the process that begins with stimulus and ends with response; for even if some stage or stages of this process be 'figured', as the *Gestalt* view makes probable, there is still no reason to dispute their claim.

But we have also seen how the behaviorists have fallen headlong into the trap prepared for them by the introspectionists. Apparently they argue as follows: 'mind' or consciousness was asserted to be the controlling factor whose absence has now been admitted by most psychologists, either by explicit agreement with us or implicitly by their assumption in their own work that man is a response mechanism; therefore, there is no need to postulate 'mind' or consciousness, which are simply illusions like the more ancient soul.

Not a few psychologists, however, have felt that here is a serious fallacy. As C. K. Ogden puts it: "That consciousness is a meaningless term; that it 'is neither a definable nor a usable concept; that it is merely another word for the "soul" of more ancient times' (*Behaviorism*, p. 3), and that it is pure assumption—all this does not follow from its non-observable nature. We do not observe consciousness; we have it or are it, and in fact most of our observations of other things require it. In this respect the point of view of the behaviorists is not a point of view but a mistake."[1]

Let us be clear about this mistake and how it has arisen. It follows, in fact, from the identification of consciousness with Will or 'mind', for it seems reasonably clear that the behaviorists' assertion that both Will and 'mind' are absent from the human response, has led them to the denial of consciousness in the human response. The behaviorist remains blind, apparently, to the possibility that consciousness may well be present without necessarily exerting any control over the response, in the sense of enacting the rôle of *deus ex machina*. And this blindness seems to be uncritically shared by many psychologists outside the behaviorist fold, with the result that consciousness has fallen a victim to a conspiracy of neglect and hence that psychology (as distinct from physiology) continues to lack a logical *raison d'être*.

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[1] *The Meaning of Psychology*, p. 165.

The separation of the concept of consciousness from the vague and untenable concepts both of Will and of 'mind' shows, however, that there remain two major possible theories. The first of these is not incompatible with the second; but inasmuch as we intend later to show a necessary distinction between them, we shall list them separately. These two possibilities are that consciousness may be present in the stimulus-response process (1) as an entirely *passive* accompaniment or factor; (2) as an organic element which itself is part of the response.

Such an oversight on the part of the behaviorists may well cause us to examine some of their other doctrines more closely. For example, this matter of the overwhelming significance of external stimuli in the 'conditioning' of the human being. That the reactions of the human organism to the external world take serious account of external stimuli at any given moment and that they evidently conform to such stimuli, is undeniable. But at first glance this would seem to be a tribute to the organism's practical intelligence rather than evidence of its subserviency.

To the materialist the fact that a man stands impotent to cross a swollen river bolsters his *à priori* faith in the picture of man as a helpless plaything of powerful outside forces. To the idealist the flung bridge, withstanding springtime torrents, bolsters another faith, the faith in man not only as master of the river, but (a serious *non-sequitur*) as master of himself. Why must we subscribe to either of these crude pictures, dictated as they are, not by reason but by emotional inclination?

To be sure, the behaviorist adds finer details to the original materialist picture. A man, we understand him to say, is an organism composed of cells that are arranged in bony structures, covering tissues, organs and nerve systems. The chief characteristic of such an organism, at least for psychology, is its attribute of responding to stimuli. The laws governing its responses are the laws of psychology. One very important law may be taken as established: that, in general terms, the reaction will vary as, and be governed by, the stimuli. In still more general terms, given an organic human structure, this organism will and must be governed thereafter by the stimuli externally provided.

If we are fair in attributing these mis-statements to behaviorism, it is difficult to see why they should be allowed to pass unchallenged. We can agree that the human organism is composed of cells that are arranged in bony structures, and so on. But with equal, if not greater justice, it can be said that this organism's chief characteristic, at least for psychology, is its attribute of constantly manufacturing its own internal stimuli and enforcing the results of its own self-stimulation upon outside environment through the self-activation of its own musculature. The self-impulses manufactured within the organism result from a raw material called food; but in the food-taking process is no loophole for the behaviorist. In this process it is environment that lies passively open to the organism, and it is the organism that actively selects and rejects what is offered.

Nor do studies on the effect of diet upon human beings alter the position, the fact of the matter being that to-day man has so drastically mastered environment that his food choices cover most of the planetary surface. When the behaviorist answers that men (and their diets) are governed by their parents and neighbours through early conditioning, he has been forced to a very different position indeed. This is not government by external stimulation in the original sense at all; it is government by other human beings who only use external stimulation *as a means*. In this case man is not ruled by the less complex external forces, but by the equally or more complex forces of his own species.

As to consciousness, and as to the vast importance of external stimuli, we shall do well to hold behavioristic theory under grave suspicion. This should not blind us to one tremendous advance which we owe to the boldness and integrity of the behaviorists. When they insisted that human beings should be studied objectively without fear of priest or prophet, when they outlawed the worse than useless technique of introspection, they bestowed on us a boon which their later excesses have in no wise diminished. We have emerged from the era of religious speculation based upon suppositious souls and 'minds'; and if, in the process, the foolish mistake has been made of consigning consciousness to limbo along with these 'minds', perhaps that mistake has already been remedied.

At all events we have found the two most serious defects of behaviorism covered in the system of Integrative Psychology. In the first place we find that here the whole physiological story is taken into account, and not merely one-half of it. It is true that the human organism responds to external stimuli, but in how different a fashion from that implied by the behaviorist! No external stimulus ever passes the sensory centres in its original form; millions are being constantly destroyed or inhibited immediately upon, or shortly after, their entrance. Having been forced to conform in the most drastic way in the sensory centres with the organism's own self-impulses, the results of such conformity, changed out of all resemblance to the original stimulus, must twice more run the gauntlet of the organism's acquiescence in the correlation and motor centres.

If we call the entering, stimulus-impulse 'M', then in the sensory centres this impulse is changed to another, M-1, in the correlation centres to M-2, in the motor centres yet again to M-3, and we may denote the final activation of the effector as M-4. Even in this absurdly over-simplified generalization we can see the fallacy of attributing M-4 to M. There is a causal sequence leading to M-4, but in this sequence M plays a very much smaller rôle than the advocates of conditioning would have us believe, so small indeed as to contribute perhaps one-thousandth, but more probably one-millionth or less, to the final result. In fact, for its very conveyance to the sensory centres of the organism at whose doors it knocks, any external stimulus depends completely upon the organism's self-activity in maintaining the transmitting nerve trunk.

What then of those reflexes out of which it is asserted that human behaviour is built? Leaving out of account the metaphysical *Gestalt* objection that complex behaviour cannot be thought of as being "built up" of a combination of simple reflexes, we meet the final objection that no simple reflexes exist. Even the knee-jerk, as simple a reflex as can well be found in the human organism, is not so simple as it looks; this superficial reaction varies constantly with the internal condition of the organism and the variations in the reaction are themselves used to measure such internal conditions. The truth would seem to be that the knee-jerk and similar simple reflexes are really outlying part-reactions within an entire Unit Response; as such they have some bearing upon the whole response, but a relatively insignificant one. It would appear that we may safely dismiss the idea of the human organism as a simple reacting device, jerking spasmodically in response to push-button stimulation from outside.

In the Unit Response view a human organism is largely a self-contained and self-determining unit, its behaviour the manifestation preponderantly of its own energies. This does not mean that external stimuli have no effect upon it: it means that that effect seen in true perspective and under ordinary circumstances, is a relatively minor one. A correct understanding of human behaviour involves the concept of integration, for the human organism is, above all, an integrating mechanism for the combining of impulses from outside and from inside. The resulting product of integration is due neither to one of these elements nor to the other: it is due to both. It is also due to the structures and other attributes of the integrating mechanism. The fact that the integrating mechanism pertains to the organism and that the impulses self-manufactured within the organism play the larger rôle, both in numbers and influence, in the combining process, suggests that generally speaking, the organism is a self-determining unit.

Here we must carefully guard against being misled by the expression, self-determining. In the technical controversies between psychologists this expression has a very different significance from that which it bears to the layman. In the present case we must most vigilantly guard against reading into it more than the assertion that, in those integrations between environmental and the organism's own forces that constitute human behaviour, it is the latter that play the more determinative rôle.

In Unit Response psychology there is no escape from the strict rules of scientific causality. Human responses are the inevitable results of prior causes, the only difference between the Unit Response and the behavioristic outlook being that the Unit Response system quite properly recognizes the existence of two such trains of causes, one train producing the phasic (temporary) outside stimulation and the other producing the more powerful and constant internal impulses. These two trains of causes must then combine within the organism with all the exactitude and predetermination that characterize any other phenomena of electro-chemistry. There is no chance about it, nor any will, free or otherwise.

The outside train of causes represents the influence of environment; the inside train that of heredity. The source of the self-impulses manufactured within the organism is the digestion of food; and since the digestive apparatus and the digestive function are both inherited, it is to heredity that the character of the self-impulses must ultimately be traced. Going back as far as we possibly can, the origin of self-stimulation is to be found in the *genes* of the germ-plasm from which the given organism grew. And while this may be an interesting contribution to the perennial dispute between hereditists and environmentalists, we remain strictly confined within the predetermination of causality. It is perfectly plain that the organism has much less control over its own heredity than over its environment. Unit Response psychology reduces a man to a helpless and automatic power station where the chemical energies of environment (in food) are transformed into the electrochemical energies of the nervous systems, and where other external energies are translated into similar terms in order to form predetermined junctions with the first.

Since such integrations take place at the psychons of the organism and there give rise to psychonic energy (indeed, psychonic energy *is* the integration of the nerve impulses), and since psychonic energy is consciousness, it is clear that the experience as well as the behaviour of the human being is predetermined. Consciousness is not some force independent of the environmental and organic energies already considered; it is simply the integration of these two sets of forces and follows the same automatic laws that they also obey. Consciousness does not determine the human response in the old *deus-ex-machina* sense. It does not determine the response at all; how can it, when consciousness itself *is* the inmost part of the response, is the integration at its core?

Here we reach the point where the second serious defect of behaviorism is remedied in the Unit Response system by the recognition of consciousness as a fact and the attempted explanation of consciousness in physical terms.

Despite some confusing passages in Unit Response literature, the doctrines of this system must not be construed as offering solace to the traditional vitalistic view. The situation envisaged by the Unit Response system can by no means furnish a basis for the vitalistic theory that there is something superphysical in man which is capable of controlling at least some of the physical events in his organism and that this something is not in any way reciprocally conditioned by the physical events. The vitalist, however, is always forced to fall back upon a soul in some form or other as constituting this something; and as we have seen, he is thus in the position of asserting a belief for which he can offer no scientific evidence. In this matter we find it necessary to agree with the scientist, whose theory is constructed not for the ulterior purpose of supporting some prior view, but solely for the purpose of explaining rationally those facts that are actually found to occur.

It is most important to emphasize that Integrative Psychology is truly mechanistic in character and that, in returning consciousness to psychological consideration, it does not bring consciousness back in the guise of an arbiter interfering from above in the set trains of mechanical causality. Vitalists have spent years searching for evidence of this arbitrary rôle of consciousness in human experience and behaviour, and as far as we can discover, have never yet presented a single item of convincing proof. On the other hand, both behaviorism and the Unit Response system stand ready to account for *all* human activities, sensory, emotional and intellectual, in physically determined terms which admit of no foreign or supernatural factor. Whether discouraged or not, let us be reasonable and follow the rational evidence. It now remains to be seen whether we can accept the positive doctrine of Unit Response in all its details and find herein the final solution of the question of 'I'.

Although we can accept the chief view-points of Unit Response psychology concerning the nature of the human organism and its responses, we cannot accept this theory in its entirety. It is time to consider what is involved in the claim that the system is 'objective' and includes itself among the 'objective' sciences. The advantages of objectivity are distinct, but (what is not always so well understood) they also impose certain limitations, no less distinct.

First the advantages. The prime advantage is impartiality. In a world wherein so many people see only what they wish to see and either miss or distort whatever conflicts with their cherished but unfounded beliefs, the vigorous impartiality of the 'objective' scientist is an achievement of which our human race may well be proud. To observe and record with accuracy, to demand nothing of one's data but that they be correct, to eschew prejudice and bias, this is the true objective attitude. Its results are pragmatically successful and intellectually worthy.

All this has been effected by the simple device of separating the investigator from the investigated, the observer from the observed. In what are called the natural sciences, the separation follows from the character of the situation. The biologist cross-breeding his plants or animals, the chemist watching his test-tubes and the astronomer recording his observed notations, are all naturally removed from their objects of research. It is only necessary to forswear pets among theories (and there really are men who can accomplish this), and the thing is done.

But in psychology the situation is not nearly so unambiguous; and in consequence the 'objective' attitude in psychology is a very recent accomplishment. In dealing with 'minds' the most direct access seemed obviously by way of one's own; and from a comparison of introspective results illuminating conclusions were expected. The programme, however, has miserably miscarried. Men of scientific sincerity can and do discount known prejudices, but what defence is there against unknown, because unconscious, prejudice? So far there is only one, and with a growing unanimity psychologists are adopting the 'objective' attitude.

In addition to unconscious prejudice, there is a second defect of subjectivism. It is so conclusive as to appear final, for it is not merely emotional but seems to be inherent in the very construction of man. A man's activities are threefold,—thinking, feeling, and sensing or acting. When a man studies or observes himself, he is thinking, and his thinking activity is for the time being separated from his other two operations, one or both of which become the object of his thought. Thus he is not observing himself, but only part of himself.

Within his thinking activities proper, this same separation takes place during mental introspection, one part of his mentality being engaged in observing another part. In all such subjective techniques the part that observes is taken for granted and left out of consideration, with the result that the man as a whole is never under observation; the observing part is always excluded. This appears to be what is meant by the current objection that when a man attempts to observe himself, he changes in the process; it is not a defect that can be overcome by training, but it is implicit in the subjective technique.

Both defects are remedied by the 'objective' technique. Reduced to its simplest terms, this technique consists in the observation and study of one man by *another* man or men. The latter are, presumably, trained psychologists, familiar with the means for ensuring accuracy of observation and for safeguarding against prejudice, both in making the observations and in drawing conclusions from them.

Though this step has been inevitable in the progress of psychology, its own significant defect is not remedied by reason of the fact that it does remedy the defects of subjectivism. For it means that the psychologist must absolutely renounce all investigation of experience as such, the simple but sufficient reason being that one man's experience cannot be observed directly by another.

Nothing, therefore, except behaviour, can be the object of an 'objective' investigation. Although this behaviour may be internal and subtle, even psychonic, all 'objective' psychologists must eventually realize and admit that the accurate description of behaviour justifies absolutely no inference concerning what lies behind or outside behaviour; experience as such remains unknown and unknowable to behavioristic technique.

The above judgment is not to be considered as an objection to the employment of 'objective' methods; surely we have made it clear that they are far superior to the 'subjective' methods previously employed. But it is an acknowledgment of a limitation quite native to the 'objective' method, a limitation of which sooner or later acknowledgment must be made.

The 'objective' psychologist is on the outside looking in, and outside he must remain. He cannot have his cake and eat it; he cannot be both objective and subjective at once, both inside and outside. Having taken up his exterior position for a legitimate purpose, it becomes illegitimate for him to claim to be elsewhere than where he is. From his exterior observations no inferences can be drawn regarding interior experiences. If he is sensible, he will admit the existence of consciousness, the hub of all experience, but at the same time he must confess his inability to deal with it.

How then does it happen that the 'objective' system of Unit Response psychology deals with consciousness, not only plausibly but even legitimately? Surely psychonic behaviour is a type of bodily reaction; it is specifically described as a part-reaction within the Unit Response. In criticizing 'subjective' *technique* we need not lose sight of the necessary distinction between the phenomena of physical behaviour and those of conscious experience; this distinction can disappear only in a mystical monism; and mysticism is an approach to our problems utterly different from the scientific approach. We recall Dr. Watson's assertion that to say that certain types of bodily response are consciousness, is to use the verb 'to be' in a mystical way. Dr. Troland, the panpsychist, demurs on exactly the same grounds when he remonstrates against the definition of consciousness in other than subjective terms. Sentience, he states, can never reside in matter.[1]

This objection cannot be overlooked. The psychonic theory does seem to confuse a state with a thing; it is plain that, if we are to attach meaning to our words, we must distinguish between these two; and it is plain that consciousness is a state and not a thing.

Nevertheless, in the most recent presentation of Unit Response psychology, this really serious objection is met and overcome—but at a price. Throughout *Integrative Psychology* it is constantly reiterated that all problems are being considered from the objective (exterior) view-point. Consciousness is admitted as a fact and asserted to be not so invisible a fact as has been taken for granted. In the human organism, considered entirely physiologically, consciousness, in the form of psychonic energy, is something discoverable and eventually measurable. But the earlier statement that psychonic energy is consciousness has now been changed to read: "from the point of view of an objective psychology, exterior to its subjects, psychonic energy is consciousness".[2]

This is a different statement indeed, and it is hard to see how anyone should quarrel with it. The arguments and evidence in favour of the psychonic theory are very strong; it seems extremely likely that psychonic energy is what consciousness must look like to an outside observer. So far as physical science can go, psychonic energy *is* consciousness; but the qualifying clause has a real significance. It changes the whole import of the sentence and the final meaning is that, although from a special view-point, consciousness looks like and must be dealt with as psychonic energy, nevertheless, in any ultimate sense, consciousness may be, nay must be, something very different.

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[1] *The Mystery of Mind*, p. 233.

[2] *Integrative Psychology*, p. 324.

That Unit Response psychology, the most completely physiological psychology up to date, should insist upon the necessity of dealing with consciousness 'objectively' as psychonic energy, is perfectly correct; that it should frankly acknowledge its view-point and even admit its inherent limitation, is reasonable. In short, we may well accept the statement, that from the 'objective', from the exterior, the physiological position, psychonic energy is consciousness.

There are problems, however, that demand a more complete picture of consciousness than this; and on such a problem we are engaged. We must come to some conclusion about the nature of consciousness that is not partial but complete, at least in outline. For this reason the psychonic theory is inadequate for us, not because it is unscientific, not even because we believe it to be mistaken. So far as it goes, it is probably correct; but its own limitations, self-adopted and acknowledged, render it an inadequate instrument for our purpose.

There is another anomaly of the Integrative view of consciousness that we cannot so satisfactorily reconcile. This is the confusion between consciousness and conscious content which the Unit Response system shares with almost all the other psychological systems as well.

It is just because this confusion is wellnigh universal, invading not only the dictionary and common speech but the deliberations of the learned as well, that we must point out the obviousness of the distinction before proceeding further. The man in the street may perhaps be excused for speaking loosely, but it is difficult to find a defence for technicians engaged upon an investigation of consciousness as part of their professional work. No doubt they fear, as so frequently happens, that a clear formulation of the distinction between consciousness and conscious content will involve them in philosophical discussions. Yet here, too, it is hard to imagine why the mere possibility of philosophical considerations should strike such terror; philosophy has not thrown our friends, the physicists, into a panic.

At all events there is no philosophy concerned. Let us consider a newspaper; there is a difference between the newspaper itself and the news stories it may carry on any particular day. There is a similar difference between consciousness and whatever especial configuration of sensations, emotions and/or mental processes may appear in consciousness at any particular moment. A relation is not the same thing as an identity; it would be admittedly absurd to identify the newspaper with the news stories to such a degree as to insist that the one *was* the other, and any investigator who did so would find himself greatly hindered in finding out what a newspaper *really* is—a complicated organization, and not a mere collection of ever-changing dispatches. If we can distinguish between the paper and the stories without any appeal at all to the profundities of metaphysics, why can we not equally distinguish between consciousness, the ability to be aware of sensations, emotions and thoughts, and on the other hand the sensations, emotions and thoughts themselves, the content of consciousness? If there is a distinction between a sign and your ability to see it, there is an exactly similar distinction between an emotion and your ability to feel it. The man in the street may conceivably say, what of it? But how can *we* continue to wriggle away from clarity, when this confusion lies at the core of the very subject we pretend to be seriously investigating?

Everywhere we find the same confusion lurking beneath the discussions and controversies concerning consciousness. Lashley, in the article cited earlier, believes that when considering the relations between the objects (content) of consciousness he is dealing with consciousness itself, and Watson's denial of consciousness began with a denial of images, a part of conscious content.

C. K. Ogden speaks of the introspective process of "interrogating consciousness"[1] and appears to mean by this expression the questioning of our conscious content, although there is a possibility that we misinterpret his intention; and to select but one further passage, he obviously uses 'consciousness' and 'conscious perceptions' (which are themselves conscious content) as interchangeable terms.[2] In a similar fashion Dr. Troland, in his *Mystery of Mind*, previously cited, gives an elaborate description of the content of consciousness and believes that he has thereby achieved a descriptive definition of consciousness itself.

It seems plain, nevertheless, that such a confusion of fundamental concepts cannot but be fatal to the progress of any science. We progress scientifically by being clear, not vague; and to employ the term 'consciousness' at one time meaning experience, at another sense perceptions, and yet again in the direct sense of conscious content, is far from that clarity which is not only desirable but necessary. If consciousness is of so little importance to psychology that we cannot take the time to make essential distinctions, the whole subject of consciousness is a pastime; but if the subject deserves study, let us at least define its chief terms. There is no more excuse for confusing consciousness and conscious content than there is for imagining that a description of certain illuminated objects informs us about the nature of light or that a magnetic field is properly to be defined in terms derived from the iron filings that happen to make its existence known.

As we have said, the Integrative system is one of the common victims of this confusion. Let it be admitted that the psychonic theory has possibly or probably discovered the *places* within the organism where experience occurs, the psychons. In the form of psychonic energy, it has perhaps found the ultimate physical entity with which experience is indissolubly associated,

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[1] *The Meaning of Psychology*, p. 174.

[2] *Ibid.*, p. 10.

But this physical entity, psychonic or other, is not, and cannot be, *the experience itself.*

In the analogy of light we have three elements: the object, the light, and the relation between them which we call illumination. Psychonic energy may be the object upon which consciousness plays, as it were, in order to produce conscious experience. In that case psychonic energy furnishes the objects of consciousness and is responsible for its content, but psychonic energy must not be confused with the second and different element (consciousness) in the situation.

As the psychonic theory stands, it maintains that we reach the final and essential element in man when we arrive at psychonic energy. A man is defined as the sum of activated psychons in a given human organism, or alternatively as the sum of psychonic energies there arising. This is an attempt to describe the situation in one-third of its terms; and here again we meet the error of confusing the something which is conscious with whatever that something is conscious of. Nor can we admit that the expression, conscious of, is meaningless simply because for the moment we lack a subject for these words.

Since the pan-psychic and the psychonic theories both confuse consciousness with conscious content, the implicit conclusion of both is the same; the conclusion that consciousness is itself the subject of consciousness. Ask who it is that speaks of psychons, and the answer must be that it is the psychons themselves that speak. But here we have the equation, subject equals object, and how shall we maintain any rational discourse, much less a scientific one? It is no use to say that some psychonic arcs are higher than others and thus can be aware of the lower, for no matter how high the very highest may be, apparently it still can speak not only of the others, but of itself. Certainly we, who according to the psychonic theory are a collection of psychons, are now speaking of this highest arc.

The error is well illustrated by the example of the magnetic field. The iron filings that evidence such a field are not to be confounded with the field itself, which may equally well be present in the absence of the filings. Sensations or thoughts may similarly be evidence of the presence of consciousness, but they are not on that account themselves consciousness. The Unit Response view does, indeed, approach our present contention when it is said that "there are three kinds of consciousness, sensory, mental, and emotional, and it is a fallacy to imagine that one kind of consciousness is more like consciousness, or more characteristically conscious, than another kind".[1] But there remains the error of asserting that there are three *kinds* of consciousness; actually there is but one kind, a kind that makes possible the experience of three *categories of content*, the sensory, the emotional, and the mental.

These distinctions are not just hair-splitting; they are cardinal ones for psychology, and unless they are kept clear, we can never hope to build a scientific structure.

The psychonic theory, being explicit, has the merit of consistency, and the confusion regarding consciousness is clearly reflected in a similar ambiguity of physical definition. We note below five formal but different definitions of consciousness offered by the psychonic theory:

(1) Consciousness is "the totality of changes occurring upon the surface of separation between any two neurones whenever the junctional membrane is continuously energised from the emissive pole of one adjacent cell to the receptive pole of the next".[2]

(2) "There is considerable evidence for advancing the hypothesis that psychonic energy is consciousness."[3]

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[1] *Integrative Psychology*, p. 359.

[2] "The Psychonic Theory of Consciousness", W. M. Marston, *Jour. Abnor. & Soc. Psych.*, Vol. XXI, No. 2, July 1926, p. 163.

[3] "Motor Consciousness as a Basis for Emotions", W. M. Marston, *J. Abnor. Soc. Psych.*, July—September, 1927, Vol. 21, No. 2, p. 144.

(3) "The totality of energy generated within the junctional tissue between any two neurones, whenever the junctional membrane is continuously energised, from the emissive pole of one adjacent cell to the receptive pole of the next, intrinsically constitutes consciousness."[1]

(4) "According to the hypothesis under discussion (the psychonic theory), these psychonic impulses are con-[illegible]

(5) "We suggest, therefore, that from the point of view of an objective psychology, exterior to its subjects, this psychonic energy is consciousness."[3]

Among these several definitions we find consciousness defined as (*a*) the *energy* passing through the psychon and also as (*b*) the resultant *behaviour* of the psychon. But these two quite different statements are inconsistent, for there exists an obvious distinction between energy and behaviour. For example, the movements (behaviour) of billiard balls during a match can be fully described without any mention of the forces that initiate such movements; and there is an equally valid distinction between the presumed stream of electrons passing through the filament of an electric lamp and the resulting behaviour of the filament which produces the phenomenon of light. Between the two physical definitions of consciousness offered by the psychonic theory there is, indeed, as great a difference as is found between the concepts of consciousness and of conscious content.

Nevertheless, it is only fair to remark that, of the definitions cited, only (1), the earliest, favours behaviour, while (2), (3) and (5) all speak of energy, and even (4) is open to the energy interpretation. We may therefore take it that the final position is that psychonic energy is consciousness. But since Unit Response psychology conceives of psychonic energy as a very

[1] *Emotions of Normal People*, W. M. Marston, p. 51.

[2] "An Experimental Study of the Psychonic Theory of Consciousness", W. M. Marston and C. D. King, *Psyche*, July 1929, p. 42.

[3] *Integrative Psychology*, p. 314.

subtle, but still definite, form of matter in motion, the characteristics of such energy depend upon the physical characteristics of this subtle matter, and once again we are back to behaviour.

But it seems evident that if consciousness is to be conceived of as a force, it must first of all be defined as a potential—in fact, as a potentiality of awareness, which is quite separate both from the subject and from the object whose interactions result in conscious content. In the fundamental situations we are now discussing there are *always* three factors, never just two ; and the dilemma of dualism is resolved, not by the fallacious expedient of expressing one factor in terms of the other, but by recognizing the presence of the third and reconciling element. In the present case, this third factor is consciousness itself.

If the analogy of the magnet be taken, then we may define consciousness as the independent force field within which experience may take place conditionally upon the presence in that field of two other entities, (*a*) an experiencer and (*b*) phenomena called objects. These objects, of course, are not to be thought of as the objects in the external world, but as the three kinds of psychonic energy underlying sensation, emotion, and thought.

It will be noted that we are using the term, consciousness, in the sense of the pure activity of awareness, irrespective of the object towards which this activity is directed. It cannot be denied that at times there is awareness of sensations, at other times of feelings and thoughts. The common factor that underlies all these experiences is the pure activity in relation to which, in the presence of an experiencer, the above three categories constitute themselves objects. This is what is meant by awareness. By consciousness we mean either that *psychological* (not physical) force that is spent whenever a condition of awareness occurs, or else the state or condition itself. The question regarding 'I', the experiencer, who am aware of sensations, feelings and thoughts, is the question toward which our inquiry is directed.

To considerations such as these psychologists frequently reply that, if consciousness is only to be defined in these somewhat metaphysical terms, it no longer remains within their province. This attitude demands the strictest challenge if psychology is ever to be distinguished from physiology.

The statement that, if consciousness is not a form of matter in motion, it cannot be scientifically investigated has arisen from ancestor-worship in regard to the physics of yesterday, since physics now clearly denies the existence of the very kind of matter which psychologists still believe to be essential.

"Modern physics therefore reduces matter to a series of events proceeding outward from a centre."[1] "A piece of matter . . . is to be constructed out of events . . . Heisenberg regards a piece of matter as a centre from which radiations travel outward, the radiations are supposed really to occur, but the matter at their centre is reduced to a mathematical fiction. . . . In the De Broglie-Schrödinger system matter consists of wave motions . . . obviously, since (these theories) are to explain matter, they cannot serve their purpose if they consist of motions of matter."[2] "But now electrons and protons themselves are dissolved into systems of radiations by Heisenberg and into systems of waves by Schrödinger. . . . And these are not wild metaphysical speculations; they are sober mathematical calculations, accepted by the great majority of experts."[3]

What is plain is that these 'events' out of which matter is constructed, are themselves immaterial. They precede matter, but they are not matter. Without falling into the pan-psychist error of assuming that the events are conscious ones, we can surely see that there is no value in defining consciousness in terms of matter, in order to be in agreement with physics, when physics itself has thrown 'matter' out of the window. As Eddington, the leading British exponent of relativist physics, remarks, "Physics to-day is not likely to be attracted by a type of explanation of the mind (materialist) which it would scornfully reject for its own aether."[1]

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[1] *Philosophy*, Bertrand Russell, p. 157.

[2] *Ibid.*, p. 278.

[3] *Ibid.*, p. 293.

The time is surely not far off when psychology in turn must abandon the now unscientific conception of "matter in motion". Says Russell: "He (Descartes) thought there could not be motion unless something moved. . . . No doubt most people would still hold this view; but in fact it springs from a notion—usually unconscious—that the categories of grammar are also the categories of reality. We have already seen that 'matter' is merely a name for certain strings of events. It follows that what we call motion really means that the centre of such a set of events at one time does not have the same spatial relations to other events as the connected centre has at another time to the connected other events. It does not mean that there is a definite entity, a piece of matter, which is now in one place and now in another."[2]

For the cruder measurements of the earlier behaviorists the concept of matter in motion may continue to serve well enough; but for those engaged upon the central problem of psychology, the problem of consciousness, if we wish to employ a physical terminology, we shall have to use the concepts of the physics of to-day, not those of the physics of yesterday.

We must conclude that the Integrative system of psychology, while remedying many of the defects of the older systems and while adhering strictly to the deterministic view of human behaviour and experience which most modern psychology embraces, nevertheless exhibits, in its treatment of consciousness, a certain inadequacy that we cannot overlook. In providing a material basis for consciousness, in showing just where within the human organism those movements take place that form the basis, not for consciousness, but for conscious content, it has performed a service that may well prove to be great. But it remains a purely physiological system and by reason of that fact, as well as by reason of its claim to 'objectivity', it can never go beyond the problem of conscious content. The problem of consciousness remains where it was before the psychonic theory was formulated.

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[1] *Science and the Unseen World*, A. S. Eddington, N.Y., 1929, p. 32.

[2] *Philosophy*, p. 163.

It is now high time that we returned from our consideration of these various schools of psychology to our specific interest in the meaning of the word 'I'.

We have considered various answers to the question, who am 'I'? There was the answer of the religionist that 'I' am a soul, whatever that may mean. There was the answer of the introspectionist that 'I' am a 'mind', and of the psychoanalyst that 'I' am at least a pair of 'minds', one conscious and the other unconscious. The pan-psychists imply that for any man 'I' really means a part-sum of the conscious content of his 'mind'. For the behaviorist 'I' is simply a convenient label attached to the totality of a behaving organism of the human species. And the psychonic theory views this word as referring at any given moment to the sum of psychonic arcs that are more or less continuously activated by the organism's own self-stimulus mechanisms. Of these arcs, and therefore of 'I', the Motor Self of the psychonic theory (the motor arcs activated by the constant tonic discharge) is the real core. These arcs are in a dynamic balance with the phasic stimuli brought to them through the sensory and correlation centres and by reason of that fact both the sensory and the correlation centres in the organism become constituent, but subordinate, parts of 'I'.

Only the last three of these answers are sufficiently definite to demand serious consideration. The rest are too entrenched in obscurity to bear the light.

Both the behavioristic and the psychonic proposals turn out on examination to be only careful scientific expansions of the name-and-address-of-the-body theory which is popularly held and whose inadequacy caused our undertaking of the problem in the first place.

We believe that pan-psychism is also a body-theory in this sense, despite the inevitable protests of the pan-psychists against such a view. Pan-psychism is concerned solely with conscious content, and conscious content appears to be as much an organic phenomenon of the sensory, motor and correlation centres as a lame gait is an organic phenomenon of a game leg.

It is true that there is a psychological implication, beyond all physics, inherent in conscious content. This is the implication of 'I', the experiencer of the content. But since pan-psychism denies this, there remains nothing for it to accept but a purely physical element in the phenomena of conscious content. The concluding attempt of pan-psychism to turn the tables by denying the reality of all physical phenomena (which, it claims, are in the final analysis psychic) seems to be an example of crude psychic monism little better than Christian Science. If a particular configuration of conscious content is not definitely an attribute of a particular bodily organism, it is difficult to imagine what it may be.

Thus, all of these theories, the pan-psychonic, the behavioristic and the psychonic, are really only more minute descriptions of that organism which, under its more primitive label of name-and-address, we concluded could not be truly 'I'.

Here then is our dilemma. The outward behavioristic aspects of our personalities are fully covered by the behavioristic school, while the aspect of internal behaviour, including conscious content, is accounted for by the pan-psychic or the psychonic theory. Both sides of the picture turn out to be completely and mechanically automatic in the usual and quite explicit sense of determination by physical events, leaving no place for 'I' except as an empty verbal label referring to accumulative aspects of a functioning body-machine. Even Bertrand Russell takes this view when he says, "This (I) is a word whose meaning evidently depends upon memory and expectation."[1] For if that be so, 'I' refers merely to bodily mechanisms.

We cannot summarily dismiss such a conclusion merely because it happens to be unpalatable. The men to whom it is due are neither ignoramuses nor careless technicians; on the contrary, they are capable experts who have chosen to devote their lives to the investigation of these problems, and their conclusions are the result of years of research backed by all the resources of modern science. Their finding, therefore, is not hasty, nor can it be lightly treated.

As popularly used, the word 'I' undoubtedly refers to all those vague ideas of Will, control, captain-of-the-soul, etc., which have definitely evaporated under scientific scrutiny. Certainly, then, so far as our personalities are concerned (and personality is here used to include all our sensations, emotions, thought, in general all our external and internal behaviour), 'I' becomes either a stupid illusion for those unfortunates who "faintly trust the larger hope", or else a mere label to be applied for convenience' sake to separate human organisms, and thus entirely empty of its former significance.

Have we then nothing that may properly be called individuality, as contrasted with personality? We are prepared to include all our behaviour, sensory, motor, and mental, under personality and to admit that all this mass of data about ourselves is entirely automatic in character. We are prepared to go further and to admit that the use of the word 'I', in its historical significance in connection with any of this, is inadmissible. But what is left, to which we may refer as individuality or in connection with which 'I' become significant? Can there be anything left?

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[1] *Philosophy*, p. 207.

We have examined the soul-theory, the mind-theory and the body-theory, as they bear upon the question of 'I'. Each of these, we believe, has some fatal defect. At the same time among the variations of these three types of theory (of which we have considered the strongest examples) all the current proposals for the solution of our problem are to be found. What then is to be done?

We maintain that the problem is too important to allow any thoughtful person to remain content with the present situation. We must continue to seek a solution; and only when a definite and verifiable answer has been achieved, can the research be dropped. Since the current proposals *are* inadequate, there remains for us only an endeavour to find some fresh means of attack, new but still scientific.

CHAPTER VI

CONSCIOUSNESS AS A STATE

We have now reviewed the positions of the leading schools of psychology as they bear upon our subject and we have seen the essentially physiological basis of modern psychological theory. This physiological view is not without excuse. Let us suppose that we wish to discover the laws of experience, which is surely a task of psychology. There is no doubt that the subjective attempt to investigate experience directly, that is, by introspection, has ended in failure. And since, quite indubitably, a man's experience depends upon what happens in his body, then if the physiological events (*e.g.*, the activation of the psychons) which underlie his experience can be ascertained, the subjective fallacy can be overcome and the laws of experience objectively discovered.

The defect of this position for us lies in the fact that we are interested in the experiencer rather than in the experience. To deny the existence of an experiencer, as many psychologists do, is to transfer to the realm of complete actuality that limitation which psychology itself suffers by reason of its present physiological technique. Of course, the fact that psychology has assumed a specific limitation for a specific purpose changes nothing except psychology's ability to deal adequately with its subject-matter as a whole. Because it has been obliged to adopt a physiological technique in dealing with the question of experience, the most recent psychology is unable to deal at all with the question of the experiencer. But the description of experience cannot be substituted for that of the experiencer. Quite different sorts of people are exasperated by a delay in the subway; the experiences are similar, but the experiencers diverse.

It is not because psychologists are stupid and we are wise that we find the answers of modern psychology inadequate. It is because psychology has, by its adoption of a physiological technique, voluntarily foregone even the possibility of addressing itself to our special question.

All the same, it cannot be said that our question has been disposed of, and still less that its importance has been diminished. We can only regretfully confess that official assistance has failed and carry on our investigation ourselves. Needing some starting-point for our attempt, we propose to take as our primary fact the fact of consciousness.

We are not thereby laying ourselves open to the charge of relying upon merely another axiom. An axiom is an intellectual proposition which, although usually both obvious and convenient, carries no guarantee of its final truth. But we intend to rest our case not upon an intellectual belief, but upon an ultimate datum—possibly the ultimate datum—of individual experience. Since this involves a distinction between thinking and being, we must say that we start not from a mental axiom, but from an axiom of being. The latter is not open to possible doubt. Nor will we admit the justice of the reproach that this is a philosophical instead of a scientific basis, for the simple reason that the very existence of science involves just this 'philosophical' foundation.

It may be said that we are at best beginning with an assumption. We reply that this beginning differs from what we usually call an assumption much more than it corresponds to one, because *this* 'assumption' cannot be doubted by any sane member of the human species. It is "the one assumption of psychology, which is not really an assumption at all", to which we referred earlier when considering the bases of the different sciences and their relation to psychology.

We recall that C. K. Ogden has said of psychology that it is concerned with the task of describing ourselves.[1] Referred to each of us singly, this is no less than the task of describing the meaning of the word, 'I'. He also recognizes the importance of consciousness in this connection when he says, in a section already quoted, "We do not observe consciousness; we have it or are it."[2] From so different a point of view as that of Dr. Marston we find the various sciences listed, together with the units with which they deal, all the way from physics, dealing with electrons and protons, to psychology whose business it is to describe the behaviour of psychons.[3] And from his standpoint psychonic behaviour is consciousness. Nor are these by any means the only well-known psychologists who might be quoted in support of the fundamental psychological importance of consciousness.

We believe that this original and primordial fact of experience, namely consciousness, which is indubitable for the individual, is of universal human validity and constitutes perhaps the lowest common denominator of human life. It is not a question at first of admitting the existence of anyone else's consciousness, but simply one's own. We are here at a point that precedes our inclusion of others in our conception of reality, and also antecedes the beginnings of any of the sciences. The matter at issue is the purely personal one whether I myself am conscious; in other words, do I exist? That question is not really debatable, since a negative answer disposes of the debater together with his argument. At all events, let him who does not admit to himself his own experience of consciousness, read no further. We confine ourselves, in what follows, to those who at least have no doubt of their own existence. And in this way we reach a necessary agreement, a base from which we can initiate our later efforts.

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[1] *The Meaning of Psychology*, p. 1.

[2] *Ibid.*, p. 163.

[3] *The Emotions of Normal People*, p. 48.

We have already found that consciousness is a state or condition, but we can go a little farther and add that it is a varying and variable condition. We recognize in our usual experience two main types of consciousness, the sleeping and waking states. These likewise are not fixed modes; for whereas at times the transition between them is sharp and well-defined, at others it is imperceptibly gradual, giving rise to many intermediate phases in which the two are indistinguishably mixed. For all we know, it may be that the sleeping state is, as it were, also present during the waking state, occasioning phenomena of the so-called unconscious or subconscious type. This must remain a pure guess for the present.

Our purpose is an investigation of 'I'. The word is of frequent occurrence; and its almost universal use refers to various reactions of the body, as in the expressions, "I am typewriting", "I was entirely dissatisfied with him", "I shall think the matter over and come to some decision when I return." These are the three typical activities of the body, namely, externally manifested physical reaction, emotion, and mental process.

To one acquainted with the work of the behaviorists it is impossible to deny that they have seriously impugned any such interpretation of the word 'I'. For they have not only rendered it probable, to the point of practical certainty, that these so-called actions are really reactions, completely automatic in their nature, but also that they differ in no fundamental way from the usual chemical reactions of inorganic matter. There is no cause to include a vaguely mysterious conception (named '*I*') even in the phenomena of thought or in the subtleties of its expression which we call language, when electrochemical formulæ appear devisable which offer adequate explanation.

This is but to repeat that 'I' cannot be synonymous with the name and address of any body; it is also to prove that the ordinary use of the term is an unjustified extravagance. Thus far we may go hand in hand with the behaviorists. In thought, emotion and grosser physical activity it is not 'I' who act, it is a mechanical body which reacts.

Nor can we confuse 'I' with consciousness itself, or with the content, or objects, of consciousness. Here is where we part company completely with the Panpsychic and Psychonic Theories. For it seems evident that to mistake the feeler for the felt, the eater for the eaten, may be good Hindu mysticism but can scarcely be called good science.

On the contrary, we maintain that in respect of consciousness there are three elements, consciousness or the conscious field, the subject (that which is conscious or finds itself within the conscious field), and the object (those things which are represented in consciousness). Further, we maintain that this something which is conscious is not a 'mind' or a 'soul', but indeed is what we really refer to when we use the term 'I', *viz.*, our most intimately individual selves. Thus, we reach our preliminary definition of 'I', which is that for each individual it is the Ultimate Subjective. We search unsuccessfully for any concrete attributes of 'I' and naturally so, since everything to which definite attributes can be assigned, is *ipso facto* objective. Nevertheless, in defining 'I' as the Ultimate Subjective, we can perceive the generality that the nature of 'I', its unique characteristic, is precisely that of being conscious. And thus we are led to a further investigation of the *character* but not the *content* of human consciousness, and not as the path that shall bring us to a final conception of 'I', but as the necessary approach to the beginning of that task.

One of the most obvious things about consciousness is that it constitutes the highest value of all human values. This was to be expected from our definition, but it is none the less encouraging to have it universally realized. Our type of consciousness we believe sets us apart from the birds and beasts and from all other creatures of the organic kingdom of which we, in another sense, are a part.

We also discern that this value of values lies implicitly behind all the goals men strive for. Is it wealth, or power, that a man spends his life in attempting to accumulate? Surely there are few who would sit in seclusion counting their bank-notes or merely reflecting upon the influence they could exert if they would. No, it is the *use* of money or of power which is the incentive, and what is this if not richness of conscious experience? We do not maintain that men for the most part recognize clearly the true rewards they seek, or even that many could formulate them; but at the core of all their ambitions is this ambition—to experience more consciousness.

Similarly with fame, or with any other of the most powerful attracting forces—not the thing in itself, but what it brings. And although it may be sensual pleasures, or more vivid emotions, or the complex subtleties of thought or even understanding, what it brings is always reducible to the same thing, more of some particular kind of conscious experience. We differ one from another only as to the means we adopt. These differences may perhaps be attributed to the early behavioristic conditionings of our response-mechanisms, our bodies, but the drive itself is humanly universal.

At this point a serious misconception may arise. Let it be clearly stated, then, even at the expense of repetition, that sensations, emotions and thoughts are not in themselves conscious entities; they are movements of matter within our bodies to which, when we are aware of them *en masse*, we give these names. They all result from the chemical activities of an automatic mechanism.

But our vocabulary is inaccurate and betrays us. The fact is that a 'sensation' is, say, ninety-nine per cent a physiological process and one per cent the registration of that process, not by a 'mind' but by 'I', if 'I' am in the necessary state of consciousness. Thus, the behaviorist is quite right in speaking of a sensation as a physical occurrence, and his opponent is likewise correct in maintaining that it is a phenomenon of psychology. But since the word, sensation, refers to an occurrence in which two distinctly different phenomena take place in succession, its use has first one meaning and then another; we suffer from the lack of a scientific term referring to the physiological or initial aspect of a sensation and of another term for the psychological or subsequent aspect. The psychoanalysts have utterly debased the meanings of the two terms formerly employed in this connection—'neurosis' for the neurological phenomenon occurring within the nervous system and 'psychosis' for the resulting psychological phenomenon of sensation. No new terms have been supplied for the lost meanings, but we need them all the more since these two aspects not only must be distinguished in the relation of cause and effect but have actually to do with entirely different *kinds* of phenomena.

The case is the same with the two other experiential and behavioristic elements in man, the emotional and mental. It is not surprising that during the years of physiological ignorance these phenomena opened the door of psychology to the religiously mystical (James and the purposivist) and to the non-religiously mystical (Titchener and the introspectionist). But surely we have now progressed far enough to comprehend that an emotion, while it is neither a sensation nor a sum of sensations, belongs to a similar category as a sensation; that is to say, it is primarily a physiological occurrence and secondarily the *conscious* registration of that occurrence.

Thought is also a physical event *plus* its registration. But this last phenomenon is of so complex a character and the individual concerned is so little aware of the physiological factors involved in his own body, that all kinds of illusions beset him. As for instance that *he* is thinking (when, in fact, he is only being vaguely conscious of the total effect of many minute, perhaps electrical goings-on in his organism which are proceeding entirely automatically) or that he has free will and by some magic can change the predetermined course of the event, and so on.

Since the body is always functioning more or less in these three ways at once, the content of consciousness is exceedingly blurred. Although one feature, *e.g.*, emotion, may be predominant at a given moment, the other two are also present to some degree, and what 'I' am actually aware of is an impure, confused blend, a sort of transient unity.

That many introspective illusions have arisen from this condition, is apparent from the work of the behaviorists. So far as behaviour, including the internal, is concerned, there *is* no need to postulate any consciousness intervening between stimulus and response. The response reveals the entry of no outside element; or to put it another way, the response (considered as the total reaction) contains nothing which is not fully accounted for by its physical determinants, the physical organism as affected by the total stimuli, over which the given individual has no control. The psychonic elaboration of the interior processes of course only enhances the strength of the behavioristic position.

From this an extremely important conclusion is to be drawn by psychology. That conclusion is not the absurdity that consciousness is non-existent; but only this, that the consciousness of man as we know him, is completely passive. There are not three, but four things, to be taken into account; these are reactive physical processes which, if we like, we may call sensations, emotions and thoughts, and a passive consciousness, varying in the accuracy with which it registers these.

The point most especially to be noted is that 'I', who am something, if only at present the ability to be conscious, am also at present the very acme of passivity. As already remarked, the earlier psychological conception of the Will has been steadily dwindling for years, and psychologists can find no trace of it in the complete description of any human reactions, including those of the still so-called 'decision-type'.

Less technically, the matter is equally obvious. Let another creature produce sounds which our bodies have been conditioned to respond to in the manner called taking offence, and certain inevitable results occur. There is overt or covert muscular activity, disagreeable emotional tone and a rationalizing process of mental association regarding the incident. Let the weather be hot or cold, let a tune be "running through the head", and the content of consciousness is so far defined. All that 'I' can do is to be aware of these things, or of others of equally unavoidable origin.

This, the utter passivity of 'I', is to be considered the most important point touched upon thus far; and it will bear stressing. It accounts, for instance, for the false conclusion to which the behaviorists have jumped, namely, that because in human behaviour there is no sign of consciousness, much less of 'I', these elements are non-existent. But how may that which is completely passive appear in activity?

From our discussion of behaviorism we recall that two alternatives remained, quite other than a self-contradictory non-existence. These were the possibilities that consciousness may be present in the process stimulus-response (1) as an entirely passive factor, and (2) as an organic element which itself is a part of the response. The objections to the second of these alternatives were taken up in some detail during the criticism of the Psychonic Theory, and we now find ourselves reduced to the first possibility, stripped bare of the implications involved in the second. The kind of consciousness 'I' experience occurs, we may say, in my body, but in itself it cannot be an organic reaction nor any constituent part of one; above all, this experience is passive. In this last point we agree with the view attributed to the Psychonic Theory, that a man is a helpless transforming station for the energies of environment, a power station where environmental energies are reduced to the condition of the organism's own self-manufactured energies in order to be combined therewith and result in the force expenditure of automatic behaviour.

It must also be noted that in saying that 'I' am now the passive subject of consciousness we make no admission that 'I' may never in any circumstances become an active subject. We merely state what *is*, we do not say what *may be*. The idea is suggested now only as a logical possibility, since any such drastic change as the change from a passive to an active status would surely imply a defined procedure and the employment of a method which we are not yet prepared to discuss.

We next remark that not only am 'I' the passive spectator of an arena of consciousness, but that the field of awareness of 'I' covers only a small part of the whole stage. This is so with regard both to simultaneity and to succession; 'I' am conscious of very little at a time, and even with the ceaseless flitting-about of attention that takes place, manage to cover but a tiny portion of the possible field when all the moments are added together.

In the matter of thought processes, for example, what we call trains of thought are rather lengthy affairs; by the time we become aware of them, they have already progressed through many steps; they have been built up from simple units into complex structures. (We must remember that these words refer actually to the increasingly complex co-ordination of moving electrical particles in our bodies.) Then comes our instant or instants of awareness in respect of them, whereupon our attention moves to other matters and leaves the first thought to fade from our waking consciousness. But in thus fading it does not cease; it goes on to its conclusion (that is, the moving particles fulfil their cycles), sometimes a distant one both in logic and in time. We have suggested that these are the transitions from the sleeping to the waking and waking to the sleeping states (as concerns our consciousness of the movements of such particles), for that the thought continues to exist in something closely resembling consciousness, is established by much experimental evidence, from hypnotism and from dream experiences recovered by the technique of psychoanalysis. This is the phenomenon which has given rise to the hypothesis of the 'unconscious' which, if it does not refer to some bizarre and mystical region but merely to those things of which we are in fact unaware, is valid enough, although confusing because of its strange expansion at the hands of its author's disciples.

Thought processes are present in vast numbers always, and of how few of them (and of how little of those few) are we ever aware?

The same is the case with our emotions. At every instant we are in some emotional state or other, however slight. Occasionally we are shaken by a relatively intense feeling, and only then do we become at all cognizant of our condition. Even during those minutes our awareness is remarkably undiscriminating. All our emotions are mixed, and with our literary, introspectionist heritage, we give them names corresponding, sometimes roughly, sometimes not at all, only to a predominant factor. Who can distinguish, with anything like scientific accuracy, between tenderness and affection? Or can say how much jealousy, how much envy there is in his hatred, how much self-interest in his love?

When we come to the lowest units of consciousness, our physical sensations, we discover our awareness to be no less fragmentary. Upon the basis of sensations, which are the avenues of entrance of all our stimuli, our emotions and our mental processes are built, genetically. Here at least we should expect to find ourselves in better case, but it is not so.

Go through the ordinary list of the five senses and it is evident at once how little is registered. For instance, touch: we imagine that we possess this sense; but all day long our bodies are being pressed upon by our clothing, not to mention the floors and pavements, the articles of furniture with which we come in contact, and are we conscious of the pressures? Sight: let us consider the field of vision that produces impressions on the retina whenever the eye is open, and then let us say how much we see.

In such matters as equilibrium and temperature the situation is perhaps even worse. Heart-beat, pulse-beat, eyelid-flutter, external and internal muscular tensions, of all of these we are conscious at rare intervals, but all of them, and many more, are present continuously.

That we are sometimes aware of them demonstrates surely that such consciousness is possible. Yet there are some who go so far as to congratulate themselves upon a torpor which is broken only when matters reach an alarming or plainly disagreeable crisis. Nevertheless, our sluggishness lacks its supposed advantages, for neither time nor energy is conserved by our present sleeping attitude toward our sensations. It is a curious fact about awareness (well known to those who have ever been systematically aware of the distinct behaviours of their bodies) that it never interferes with any other activity, such as a mental one, which is simultaneously in progress. And everyone has noticed that it is just at those times when he is most vividly conscious of the largest number of physical sensations, that he is filled with an unusual energy.

We have now mentioned the two leading characteristics of our present consciousness, its passivity and its limitations. If we can take consciousness as a gauge of the condition of 'I' (and it is the only measure we now have), we cannot well avoid the corresponding conclusions. There is more than an analogy between passivity and sleep, activity and waking; to be passive beyond a definite degree is to be asleep.

Furthermore, if the time elapsing between the stimulation of our bodies' end-organs and the reception of the resulting impulse at the sensory centres be ·0001 second, which is a rough but verifiable approximation, and if the end-organs be practically continuously stimulable and stimuli be constantly provided by environment, as is the case—if all this be true, then it would seem that at least 50,000 impressions must be present every second. We are generous if we allow that two or three of these are registered consciously per second. Here we have, not rash speculation, but demonstrable fact which is capable of verification in the psychological laboratory. And the conclusion: if the actuality of 'I' be gauged by the actuality of 'I's' consciousness, then, taking account only of the category of sensation, we can say that the actuality of 'I', as compared with the full possibility, is as 2 or 3 to 50,000. In other words 'I' am practically inactual; 'I' am a mere word awaiting potential fulfilment.

We propose, therefore, to say now that 'I' am real (for both the truly actual and the truly potential are real), but that 'I' am asleep and thus that 'I' am not actual, but for practical purposes only potential.

Under these conditions no surprise should be felt that so little can be said of 'I'. To demand of 'I' a description of 'I' through the instrument of an automatic body whose thought processes are already habitized in other ways, is like asking one who has been asleep from birth to describe the world as known only to the waking state.

But the recognition of the fact implies the prospect of a remedy. Before proposing one and before taking the next step toward the possible actualization of the word 'I', let us consider several prior and contemporary attempts of the same kind.

CHAPTER VII

ATTEMPTS AND FAILURES

We must remind ourselves in the first place that 'I' am not an actor but a spectator; and more, that 'I' am not even an active spectator since 'I' observe only what 'I' cannot help observing. 'I' am a supine spectator whose range of view, moreover, is exceedingly limited.

But it must not be forgotten that consciousness is a variable state; in sleep for instance the awareness of 'I' is much less than when awake. Hence there is the logical suggestion of variation in the direction of greater inclusiveness than that of the waking state, a suggestion which involves the logical implication that 'I' is, even when awake, relatively asleep.

It is obvious that the natural order of life produces no such effect of expansion upon 'I'. Nature, or the effect of environment upon heredity, brings about, throughout the entire course of the average human life, no greater range of consciousness than the ordinary waking state wherein 'I' remain that which is passively affected.

It is true that contemporary superstitions may lead the ordinary man to suspect this statement. Our times are subject to an educationalist propaganda, fostered, indeed, not by our educationalists themselves but by our popularizers, outliners of 'science' and 'philosophy', one of the results of which is that the man in the street has now an exaggerated respect for philosophers, mathematicians, astronomers and in general for any expert. Does anybody imagine that in their recondite undertakings these experts achieve a more expanded consciousness than that of the waking state? If so, let him ask them. He will find that their work lies mainly in the realm of associative mental processes rather than in that of muscular or practical endeavour and that they differ from the rest of us, on their own admission, in no other respect. The inquirer will find, indeed, that in all probability he can in his own field easily surpass ninety-nine out of a hundred of these experts, exactly as they easily surpass him in their specialities. The point is that they have been conditioned to do special work, not that the type of their consciousness is in any way different from that of others.

Nor are the religiously-minded to be distinguished in this matter. Modern psychology is forced to consider them the victims of conditioning equally with the rest. They have been influenced by an ancient organization and by a small body of ancient literature. But to enjoy (because of subjective hopes and wishes) being influenced from outside is no different at bottom than being externally influenced without enjoyment. If by so simple a proceeding as becoming a sincere convert to any religion in the world a state of superconsciousness were achievable, we should long since have had indubitable proofs of its reality.

But since the external world, including all its philosophies, religions and ' movements ' produces no change in the passivity of ' I ', it is necessary that any development of ' I ' be effected from within, that is to say, by some activity on the part of ' I '. Thus the expansion of consciousness depends upon ' I ' becoming active. It is not that ' I ' and consciousness are identical; but that the two defects of consciousness are so closely related that the same means remedies both.

This circumstance appears to be known to all the human species, but in a drugged sort of way. Like men asleep, we universally recognize the desirability of a more expanded consciousness and make abortive efforts in that direction, efforts which, thanks to our conditioning, usually only serve to lead us farther astray.

Between the East and the West there is, in this respect, an interesting divergence. Both indulge dangerous fallacies, but fallacies of opposite types.

The East, neither so youthful nor so cocksure as we Westerns, avoids our error of imagining that wisdom is of recent appearance upon the earth. It entertains the suggestion that the men of ancient times may possibly not all have been the apes our anthropologists would have us believe. And looking backward, it discovers with interest a long tradition of just the sort of consciousness which seems to beckon to mankind.

And not the tradition only, but descriptions more or less detailed, of such conscious states, alleged to have been experienced in former ages. Here it is that the Easterners fall into a trap. Throwing caution to the winds, they presume that the traditions are intelligible to themselves, as well as interesting.

How could it be so? Let us imagine verbal intercourse established between a man awake and one who has always slept, a kind of communication in which only the inadequate terms of the sleep-talker are used. There will be tales of trees and lakes, of sky and sun and stars and the phenomena of days and seasons, not to mention the multifarious activities in which men engage when awake, the whole conveyed in a deficient tongue. Can our sleeper (who we shall suppose is level-headed) make any sense of these fables? In the event of his endeavouring to act upon this incomprehensible information, can he avoid calamity? How then in the case of he who is awake and of one who is assumed to be superconscious?

Yet such is the hopeless attempt which is made by trillions. The scattered fragments describing experiences of states beyond waking consciousness are carefully studied and the effort is made to reproduce their symptoms. Here we have something more serious than misunderstanding; we have the misapplication of energy in action.

The mistake is obvious enough to us, although our own error (to which we remain blind) is equally plain to the East. Their fallacy is to mistake a symptom for a condition and to suppose that in reviving the former the latter is recoverable.

A crude analogy will illustrate the point. A particular state of the blood, we will say, causes eruptions to appear on the skin. Let us suppose that this blood-condition is desirable for some reason (perhaps for the destruction of certain bacteria present in the arteries) and that he who wishes to attain it, proceeds by producing directly upon his body a series of similar festers. Such a reversal of cause and effect will fail of its purpose. For certainly the blood will be affected by the sores, but in this case it will be poisoned from without whereas in the first instance it was influenced from within. The two conditions will be entirely different and from the point of view of the desirability of the original state, its artificial and different counterpart will be injurious.

'Occult' breathing exercises are a case in point. There are traditional descriptions of certain superconscious states in which the rate of breathing becomes naturally, *i.e.*, reflexly, unusual. Indian seers long ago analysed these modes of breathing and urged their adoption by the simple expedient of practising them. By this means they obtained an organic phase brought about by the peculiar breathing itself, instead of producing a mode of breathing resulting from a general condition of the organism. Ignorant of the true causes of the original state, they did the best they could, a very dangerous best because an unnatural one.

Their mental exercises, among which concentration holds an important place, are based upon the same fallacy. In a special state of consciousness the power of intense concentration is said to be present. It is something not requiring effort, but exists as an intellectual symptom of an organic condition, just as the breathing rate is a physical symptom. The hope is again indulged that the order of phenomena can be reversed and that intense concentration attained by effort will induce its original cause, the desired conscious phase.

It would seem that this reproduction of symptoms is the chief means employed by the yoga systems (*i.e.*, disciplines) of the Orient in their aim of achieving a fuller consciousness. But consciousness is a subtle matter and even a slight discrepancy may make all the difference between expansion and contraction. Their methods are not such as can be used by average human beings; and this is somewhat astonishing when we discover that what we believe to be the correct procedure is set out at some length in a well-known passage of the Buddhistic Writings.[1] Perhaps the misunderstanding is due to the difficulty of communication between the various states of consciousness, *e.g.*, their lack of a common language, to which we alluded above. Perhaps the passage must always be ignored save by those presumably already superconscious and therefore acquainted with the necessary means, or by those who have arrived at the same method by a different route.

It is evident that there are two serious objections to the current practices of the East. The first danger, to which the majority fall victims, is that the acquirement of unusual powers will become an end in itself, taking the place of the original goal of an expanded consciousness. This is very likely in view of the fact that the symptoms, whose practice constitutes the yoga, are themselves usually striking accomplishments. Thus we get yogis, saints and ascetics, men who display highly peculiar accomplishments of an intellectual, emotional or physical kind, but whose consciousness remains of the same category as that of the average person, because after all they have only achieved these results due to conditioning by outside suggestion.

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[1] This passage exists in several English translations, as for example: *The Story of Buddha and Buddhism*, Brian Brown ed., Phila., 1927, pp. 150 ff.; *Some Sayings of the Buddha*, Oxford, 1925, pp. 72 ff.

Shadows of these Eastern types fall upon our very doorsteps. We have, for example, the super-fakir who can go into a six months' trance (a strange reversal of superconsciousness) or can equally well stick a sword through his arm without bleeding. And in some of these performances there is certainly more than a series of mere tricks; a semblance of actual control has been gained over certain parts of the organism which in ordinary people act only reflexly. These abilities are gained, of course, at the cost of life-long effort in the discipline, and it occurs to one immediately that such a price should be expected to produce more than an array of vaudeville stunts.

We also occasionally entertain visitors from the East whose avowed aim it is "to awaken us emotionally". These gentlemen proceed to evoke in our motor psychons an emotional katzen-jammer, usually by means of weird cries and noises which they misname 'mantra'. To the impartial observer the results are not impressive.

There is finally the intellectualism of the East, represented in the West, it is claimed, by Count Keiserling's 'School of Wisdom' at Darmstadt. It is understood that one of the chief exercises there practised is concentration. The pupil is directed to stare at some object, say a lamp, to dismiss from his mind all extraneous thoughts and to concentrate until the object appears in its Kantian form of '*ding an sich*'. What the value of this achievement may be is not apparent; nor are the fruits of the training easily apparent in the person of its leading exponent. Indeed if we might discourteously suggest that the Count should focus his attention upon himself rather than upon a lamp, we believe he would see, without penetrating to any '*ding an sich*', a gentleman more concerned to *épater les bourgeois* than to attain superconsciousness.

No doubt, however, there are in the East itself students who avoid mistaking the means for the end and who persevere in the original aim of all the yogas, namely, the attainment of superconsciousness. Unfortunately, the result for them is likely to be the worst of all, since the consequence of manufacturing symptoms is a condition similar to the original but at the same time profoundly different. The counterfeit conscious state thereby induced may possibly prevent them from ever attaining the true condition they seek.

Thus the East attains not superconsciousness but a distortion of consciousness which becomes the more dangerous with its degree of development, leaving us confronted by the failure of one-half of the human race, and that half not the least intelligent, in the attempt to solve what is perhaps mankind's most important problem.

If we now turn from the criticism of others to the less congenial task of appraising our own weaknesses, we are not less surprised than disheartened to find that we of the West are in certain respects leagues behind the Oriental. The Oriental is at least in a state of understanding sufficient to recognize the ultimate value of consciousness, whereas our own agreement with this fundamental principle is predominantly instinctive.

It is true that the evolutionary scale of values in modern biology remarkably approximates to a differentiation of organisms in accordance with their capacity for the realization of increased consciousness. But when interrogated, the average biologist often leaves us with the impression that mere complexity of detail or function is in itself a value, as if a machine with forty imperfect parts were superior to that ideal instrument, the lever, which functions without waste. Frequently we win his agreement only after pointing out that the biological justification for a novel organ is either its suitability as an avenue for greater conscious experience or its contribution to survival value, which means nothing if not the continuance of conscious experience.

Occasionally also a man like Mr. Waldo Frank makes a remark to this effect: "the one true hierarchy of values in the world is the hierarchy of consciousness". But such sayings are infrequent. For the vast majority of us, our sense of conscious value is left to be inferred from our phantasies in respect of other values; only an obscure feeling which has not yet risen to the estate of clearly realized formulation represents conscious value. As a consequence, our efforts towards greater consciousness present a more confused picture than that offered by the East; and our errors are at once more numerous and more elementary.

We have spoken of the factor of conscious experience behind all our attempted intellectual, emotional and physical gratifications; there is another way, too, in which this desire profoundly affects our lives. Why are the names of men like Morse and Edison held in such esteem by us? Why do we go into a frenzy of enthusiasm over Lindbergh? The ready replies are easily disposed of: others have displayed greater ingenuity in contriving complicated mechanisms, and as to daring and fortitude there are many that equal or surpass the aviator's accomplishment.

But what these men have done is of practical application; and it is of application in a particular way. Plainly enough, the abilities to communicate across continents, to hear in New York an opera being performed in Chicago and to have one's body transported to Europe in a day and a half instead of in a week, do increase our conscious contacts; if only by mechanical means, they do expand our conscious life.

Here we approach the *Zeitgeist* of our whole civilization. The multiplication of artificial aids to our natural capacities is what the thoughtful pride themselves upon in its past history and the perfection of such appliances is the shining goal of the future. That it entails the destruction of much beauty, that it dooms hundreds of thousands of our fellow-men to unremitting toil in our workshops, matters not a whit. We admit the monotony of factory labour, worse in its effect perhaps upon executives than upon common workmen; we point with pride to the "high standard of living" to which at the day's end they return. High standard of living means greater variety of food and more mechanical contrivances, including a Ford with its opportunity of locomotion; thus, in one respect, that of sensual experience, more conscious content.

Being close to our own day it is natural that the significance of its deeper motives should escape us. It is always easier to discern the tendencies of times long past and to observe how they were working toward goals unseen by contemporaries. We do not offer here any explanation of the curious fact that civilizations progress over long periods to ends which are almost always unrecognized during their attainment. But by standing mentally apart from our own age we can see that it displays this usual feature, and we can even perceive its main outlines as related to mechanical consciousness.

Our modern course is not free from obstacles, or even from absurdities. For instance, one implication of our present system which is fast becoming too obvious to miss, is an increasing democratic likeness: we are all to become as nearly identical rivets in the structure we are raising as outraged nature will permit before the final, cataclysmic rebellion. From a sane point of view it is madly irrational, but of what avail is reason against the hidden, inner urge toward more and more conscious life?

Were there a chance of success in the programme perhaps we might justify it against both reason and emotion. But there is none. No chance of real success ever exists when reason, emotion and practicality are not conjointly satisfied. In our own case, ignorance as to the true objective and artificiality of means frustrate all our efforts and lead to a distortion no less disastrous than that of the East.

Let us again draw an analogy. Let us suppose a man born with weak eyes, deaf ears and lame legs. He gathers an armament of spectacles, ear-trumpets and crutches, and fondly supposes that if only he can accumulate a sufficient number of these makeshifts and procure them of increasing refinement, his sense equipment will become normal. What a pathetic fallacy it is! Yet Mr. Van Loon has presented us with a glowing account of how "Man, the Miracle Maker" has succeeded in extending (of course, quite artificially) the scope of his hand, mouth and foot; and we are invited to share his delight in foreseeing even greater triumphs of the same marvellous character.[1] Indeed, this persuasion of Mr. Van Loon's is so widespread, it is so much taken for granted as the unthinking substratum beneath most of our 'practical' Western thought, that it is worth further discussion, even at the risk of labouring the obvious.

There is more than one error involved. In the first place there is the one-sided exaggeration of the programme. Consciousness is triply directed; the mechanical, and therefore artificial, increase of sense-content can be made, in practice, only at the expense of the emotional and intellectual elements. It is one thing to hear, another to hear understandingly, and still another to do both and at the same time to experience the appropriate emotion. As a matter of common agreement it is the last mentioned type of consciousness to which everyone aspires. An expression used to be current to the effect that he who hears most, hears least; it was a popular acknowledgment of the absence of two requisite factors in mere volume or variety of sounds.

Of course the development of such properly unified consciousness is an ideal for the moment, and any serious consideration of such a goal would doubtless imply a gradual approach. But it is to be noted as a further objection to our current plan of mechanical addition that it includes no means of proceeding to the next elements in turn when all possible sensations are at last available. The heartiest advocates of Western 'progress' do not yet hint at super-radios before which we may sit and, without the intermediation of our coarser senses, be directly subjected to emotional experiences and to the involuntary exercise of concentration, multiplication and the like.

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[1] *Man, The Miracle Maker*, Hendrick Van Loon, N.Y., 1928.

Furthermore, there are no new sensations. The continual devising of new machines and automatic contrivances has no effect whatsoever upon our physiological sense equipment, beyond the dubious one of shaking it to pieces. The range of our sensations remains just what it was before this marvellous mechanical age began hammering at our ear-drums. Taste, touch, sight and the rest constitute our only outfit; we have no new sensations at all, but only bizarre combinations of the old ones. Neither have we succeeded in supersensitizing the sensations we possess; with few exceptions our ingenious sense inventions are not in the direction of subtlety and refinement but only increasingly crude and clamorous. A diet of bootleg slops has provided no one with a finer discrimination in vintage wines, and the assorted howls that enter our ears from the radio are not likely to make us musical connoisseurs. More probably our senses are actually degenerating; and there are many who already affirm that, as regards sensory experience, we are becoming less fit than our forefathers.

Now we come to the most fundamental difficulty, the real and final obstacle to our Western programme, for the contemporary proposal is to increase passively the sense-content of an already inert consciousness. Our machines not only enable us to experience more, but they, not we, determine what we shall experience. In the outcome they offer us only more and more of the passive diet we even now indulge. Activity, however, is precisely the greatest deficiency of our present state. The meagre extent of our conscious experience is not due to any lack of material but to a psychological inertia in the registration of the material already offered and present. The increasing availability of novel sense-data is of no more value than the resources of a Ritz kitchen to an invalid suffering from faulty digestion.

That the substitution of mechanical for psychological activity in the lives of human beings must lead to characteristic distortions, is theoretically only too evident. Let us see if any of the common phenomena of the human society in which we live lend an empirical foundation to this deduction.

There is, for instance, a widespread persuasion among us that size is synonymous with importance. The largest town, the biggest building, we imagine, is the best. The first billboard upon the highways urging our residence in this or that 'fastest-growing' hamlet would also have been the last, unless large numbers of us were under the hypnotic suggestion of the value of size; but the roads abound in them when the smallest acquaintance with practical affairs is sufficient to hint that the causes of growth are just those which make residential advantage improbable. We are impressed by millionaires, not because they have at their disposal the resources which, possibly, may enable them to become leisured and reflective, cultured and wise, but because those resources are most easily enumerated not by digits or hundreds or thousands but by *millions*. On the whole our young men prefer to enter the employment of enormous concerns. Do they short-sightedly suppose that their advantage lies with well-conducted large corporations rather than with well-conducted small ones? What then is their prejudice? It is the prejudice of size and the prestige which now accompanies simple quantity.

Many instances could be cited of our peculiar outlook even in these practical matters which are our Western speciality. The foregoing are not the less illustrative because they are commonplace. They evidence a serious confusion between immediate and eventual advantage, and a trance-like suggestibility in favour of mere amount to the prejudice of other values, some of which are far more important. In short, one of our prevalent attitudes toward life is that of the open-mouthed countryman who, on his first visit to town, is confronted with an edifice more than four stories high.

We come to the field of the emotions. We will take it for granted that the reader is only too well aware of the universal inability to deal with the emotional aspects of our sex lives, an inability that nowadays is receiving so much free advertisement. We will here consider rather our less specialized deficiencies.

It is not surprising, in view of our suspected under-development, to find that most of our feelings are undeniably childish; but that we are emotional fakers is a plain distortion of our natures. And is it not so? Have we not names for many feelings which we claim to experience, but which we never know? Most of us have used at times words like 'reverence', 'awe' and 'ecstasy', but we must also admit that we have never experienced these alleged states. In almost every case, and especially when they are used intentionally, the grandiloquent tags mask much flimsier sentiments. Nor is it a matter of verbal exaggeration merely; many people believe not only others but themselves. And deceiving others is not nearly so dangerous as the subtle self-deception which is here taken only as a typical instance of our emotional twists.

An even more widespread unnaturalness is the common substitution for real feeling of a sentimentality whose simpering accents are borne from a hundred directions. They come from such different fields as that of the dramatic fare gobbled up by the millions in our movie audiences and that of our presumably thought-out treatment of the criminal.

The Victorian dodge that matters of importance, *e.g.*, the validity of Christianity, or the sexual standards which should obtain between men and women, are "too sacred to be discussed ", is another abnormality which is still abundantly represented among us. The assertion clearly means one of two things; either it means, " I am afraid to discuss serious matters because I am too lazy to think about them seriously and am likely to meet someone not so lazy who will put me to shame " ; or else it signifies, " I am afraid to discuss them because I have a shrewd suspicion that such a discussion will lead to my realization that I am under some sort of obligation to make an effort."

That such charges are not purely imaginative, may be seen from the following quotation. " I once wrote to eighty distinguished physicians and asked them point-blank whether the average physician, medical practitioner, could be depended upon to give sane instruction to our young people (in the matter of sexual education). The answer in most cases was ' No '. I quote, without mentioning their names, from three of our distinguished physicians :

> Dr. A.—' No. The average medical practitioner never heard the word sex mentioned in medical school and has never discussed sex problems with anyone. He is himself shocked at the mention of the subject. He is not tolerant of a sex emotion as such, but he tolerates the idea of venereal disease.'
>
> Dr. B.—' My experience is that he is a great prude and knows little of the psychology of sex. He has a narrow orthodoxy which is mostly false.'
>
> Dr. C.—' I do not believe the average medical practitioner is any more competent to give sex instruction to children than are average parents.'

The data gathered . . . show the real superstition and ignorance about one of the fundamental problems of life on the part of men we have been taught to revere." [1]

All this results from the wholesale evasions of a society too priggish to think, not only of sex, but even about it. For no more stupid statement was ever uttered than the assertion that serious topics are too sacred to be discussed. What else, pray, merits discussion? In justice, however, it must be said that the Victorians remain quite unconscious both of the absurdity of their position and of their use of the phrase 'too sacred' as a disguise for their inherent laziness. That is what makes them abnormal.

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[1] *Psychological Care of the Infant and Child*, J. B. Watson, N.Y., 1928, pp. 156, 157.

But shall we be told that we now have a younger generation, already fully grown, which has relegated the Victorian attitude to limbo and hence that this abnormality is now fast disappearing? Such is not the case at all. These much broadcasted rebels display an identical reluctance to face life honestly, and have only inverted the excuse offered by their predecessors. Their cynicism is as infantile in its intellectual vacuity and as abnormal in its unconsciousness of its true motive as the moral prudery it has displaced.

There are exceptions, of course. But whenever we find a man who is willing to face an important human question, we also find a man who is as lonely among our professional optimists as his courage is taboo in our mob-like civilization. And no sooner have we said all this than we find our own selves bridling at a 'too intimate' jibe of an associate or murmuring with lifted eyebrow that matters of philosophy should be left to the professors, who make their living by them. Yes, here is one of the abnormalities of our unconsciousness.

Here also we may mention the misconception common throughout the western world, of the real nature of happiness. From the highest to the lowest, from subway guard to reflective scientist, the same fallacy prevails. The labourer is certain that, were his automobile but a Packard instead of a Ford, had he a twenty-room mansion in place of a two-room flat, he would be a much happier man; his wife is similarly convinced in respect of clothes and servants. Meanwhile the scientist cautiously devotes himself to the more subtle control of environment. In America, although we are most certainly no more content than were our forebears, we carefully assure ourselves, every time we turn on the electric light, that we must be; and the general impression is of a not too distant millenium. The best of the English speculators, as J. B. S. Haldane, have the grace to date their visions of possible human happiness some thousands of years hence. But everywhere the same implication holds, that happiness, if possible at all, will come through the control and manipulation of environment. This is one of our characteristic emotional twists and its result is to reverse reality for us. For happiness does not and never can come from the outside; it is an interior matter entirely, and its most fundamental terms are those of harmonious adjustment between the three major subdivisions of the human being's functions.

As regards mentality we come off no better, although we are a civilization which has urged the claim of the intellect so successfully upon itself that the annual registration at our colleges is in the hundreds of thousands. Let us take this very matter of education as one instance among many of our intellectual deformations.

From grammar school to university graduation our courses consist in the presentation, occasionally interesting, of so-called facts. The test as to whether a student has completed such courses, as also the evidence upon which he is given his diploma and labelled 'educated', is essentially his memorization of these facts. Whatever strange theories may be held by small groups of cultists among educators, no man who has himself passed through the mills of our institutions will be in a position to deny this.

We will not press the point that the memories so carefully filled empty themselves in a surprisingly short time; we will admit that for a few years the graduate was 'educated' and that the instructors cannot be responsible after he has left their control. But even supposing the average man of forty to be able to pass the examinations he disposed of so readily at twenty, it remains evident that the relation is a slight one between a walking encyclopædia of information and a man of understanding, *i.e.*, a truly educated man. Have we not all smiled at the efforts of Mr. Edison to select intelligence by means of a questionnaire of stray facts? Nevertheless, we are respectful of a 'university training' which is founded on little else.

The common confusion between technical training and education does not touch our contention. The technical training in our universities may be, and usually is, excellent, but it is a process on a far lower plane than is education. The engineer, as engineer, is not educated, but trained; he is a machine which has been taught to go through a complicated series of reactions just as a monkey can be taught to go through a simple one. The process has nothing to do with understanding.

Most of us know at least one pompous person (if it be ourselves we usually escape his acquaintance) who is curiously lacking in understanding of the very facts upon the collection of which he prides himself. Sometimes it is an eminent scientist, sometimes a business man who cannot see the wood for the trees and is blind to the plain implications of the data he has accumulated. Thus we see the absence of similarity between knowledge and understanding, for one can know much and understand little. And we must realize that our modern mechanical system puts an undue premium upon the former, while in practice disregarding the latter by leaving its cultivation to chance.

Since our education is directed in principle only towards putting knowledge into future B.A.'s, there has grown up a belief as absurd as it is universal. This is the conviction that wisdom can be purchased and that our great universities, such as Yale, Harvard and Princeton, are the stores where it is sold at so much per year. There follows the common error, other things being equal, of attaching more weight to the views of college men than of others and the quite unfounded belief that they are better qualified for a business career. Under these circumstances it is small wonder that we continually mistake personal prejudice for competent opinion.

We have by no means reached the end even of a first list of the mental abnormalities common in our civilization. Closely connected with the conditioning of our young men and women to know without understanding, the conditioning we call education, is the widespread inability of our adults to 'see the point', whether in argument, discussion, or simple elucidation. We need only examine the controversies over political, literary or scientific questions to realize at once how seldom the disputants meet on any common ground of logic or agree upon definite premises. Where there is at first a definite point at issue, it is immediately lost sight of and irrelevant matters seize the attention of principals and audience. It is scarcely too much to say that our public discussion of public questions closely resembles the chatter of hysteriacs.

There is also the inability to grasp the distinction between things superficially similar but fundamentally different. Shall we instance the distinction between the right of the public to supervise the liquor traffic and its right to infringe the personal liberty of its own members, two entirely different matters which are in constant confusion in America to-day? A recent controversy arose in New York City over the suitability for public presentation of the play, *Maya*, by Gantillon, a Frenchman. In remarking upon this Mr. Harry Hanson, the literary critic, noted that the issue was between those old opponents, Continental Liberty and Anglo-Saxon Morality. He also noted that many persons, under some illusion, thought the combatants were Continental Licence and the American Home. Having originally before us a matter offering at least some ground for discussion, we at once rendered ourselves typically futile by espousing one side or the other of an entirely different question.

We live in a civilization made possible by the control of powerful natural forces, both inorganic and organic. The continuance of this control depends upon a considerable subtlety and clearness of thought. The vast majority of our people have been rendered incapable of such thought and the slender minority on whom this task falls, seems to be dwindling in the face of ever greater demands upon their abilities. If true, and there are many reasons to suppose so, this is a serious matter. For, although more and more mental acuity is constantly required to provide the prime necessities of our civilization, it becomes increasingly essential to oversimplify everything requiring presentation to general Western thought. Whether it be a question of adapting a classic for the movies, spreading a new scientific formulation, or explaining the philosophical views of the past, there is to-day a universal way of doing so, presumably dictated by a universal necessity. And this way is most aptly expressed in the succinct phrase born of the movies—" Dumb it up ! "

Many similar instances swarm in all three fields of our characteristic western life, and it is to be hoped that the reader, from his daily observations, will be easily persuaded that distortions do exist.

At the risk of being charged with offering a panacea, our argument is that they result inevitably from the endeavour of western civilization to seek expanded consciousness through the artificial means of mechanics ; to make an already automatic consciousness more mechanical still by supplying it ever more completely with machines as sources of sensual experience.

Of course there is here no argument against the machines, *per se*, nor the recommendation of a back-to-nature movement. The point we hope to bring out is that we are impelled into the Machine Age by a secret urge toward the expansion of consciousness and that our mechanical contrivances will never accomplish this purpose. But to scrap them is as unrelated to our real object as is their continual increase.

What we do maintain is that the programme of our Western civilization, entered upon unwittingly so far as concerns its deepest motive and carried forward to-day with ever-mounting fury, is bankrupt and impossible. Happiness cannot be bought either with dollars or inventions; nor is wisdom on sale at Princeton. And as for our secret wish, not by random and artificial methods, but only by a careful and scientific one, can our aim be achieved. It is obvious that consciousness cannot be gained unconsciously.

CHAPTER VIII

THE NATURE OF CONSCIOUSNESS

We have found that the preliminary necessity for man's understanding of his universe is that he understand the nature, conditions and limitations of his own powers. To be sure there have been guesses on the subject, notably Kant's *Critique of Pure Reason*, but these are open to the gravest suspicion of prematurity; our most recent psychology has no reliable answer to offer, and we have discovered that, far from any realization of his own abilities and limitations, man does not even know who or what he is.

Our inquiry has centred about the most intimate concept with which a human being can deal, the nature of 'I'. We learn that the only certainly known statement that can be made about it is that 'I', in the sense of Ultimate Subjective, am conscious; and our understanding of 'I' is dependent, in the absence of other data, upon what can be inferred from the present state of 'I''s consciousness. That condition, we have found, is passive and limited.

Since in ordinary circumstances nothing from the outside can bring about any change in this state, our problem becomes one of determining whether any way exists or can be conceived to exist by which 'I' can deliberately expand my own consciousness.

In attempting to keep the terms of the inquiry perfectly clear, we find it essential to distinguish sharply between two prime elements in our discussion. The first of these elements consists of the three categories of conscious *content*,—thought, emotion and sensation. Thought, emotion and sensation are words that denote the three primary types of the *objects* of consciousness. Consciousness (or awareness) itself is, however, an entirely different matter. It is the force or power or ability by means of which electro-chemical phenomena are translated into thought, emotion and/or sensation; just as light is the agency through which a red, a blue and a green object become not only visible, but *qualitatively distinguishable.* Consciousness is not to be confused with knowing (for knowing is a thought-process which is one of the objects of consciousness); nor is it feeling or sensing or doing. Consciousness is immediate awareness, while knowing, feeling and sensing are that of which consciousness is aware. The distinction is extremely important.

Professor Whitehead of Harvard has recently made a similar distinction in only slightly different terms. He says, "The word '*perceive*' is, in our common usage, shot through and through with the notion of cognitive apprehension. So is the word '*apprehension*', even with the adjective *cognitive* omitted. I will use the word '*prehension*' for *uncognitive apprehension*'.[1] "For Berkeley's *mind*, I substitute a process of prehensive unification."[2] Professor Whitehead, it will be seen, uses the term, prehension, to signify an awareness which is neither a thought-process nor a sensation; similarly, by no stretch of the imagination can we suppose that this prehension is an emotional occurrence. No, it is awareness pure and simple, as distinguished sharply from the three categories of conscious content.

We cannot for the present do more than insist upon the foregoing distinctions, even in full recognition of the fact that many persons, after the most sincere examination will find them unconvincing. To those to whom the distinctions are apparent these persons appear to be suffering from a kind of astigmatism which cannot be described as either intellectual, emotional or sensory, but must be considered in terms of *being*. To the latter on the other hand the former appear to be under some strange illusion, or intellectual double vision, whereby they perceive two different things where there is only one. The writer confesses that he belongs to the first of these classes; he can but state the distinction between consciousness and conscious content to the best of his ability, so that at least the reader may be informed as to the considerations upon which the argument to follow is based.

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[1] *Science and the Modern World*, A. N. Whitehead, N.Y., 1925. p. 97.

[2] *Ibid.*, p. 98.

To continue our review, we have discussed briefly the false mysticism of the East and the equally false pragmatism of the West. Each merits a book to itself, but unfortunately no further discussion is possible here.

Our own position is that any successful attempt of the sort toward which mankind gropes must start from our present most expanded conscious state and must consist in a progressive development therefrom. Indeed it must commence not only with the most expanded state of consciousness we experience but also with the least confused one. Undoubtedly, the least distorted and the highest degree of consciousness 'I' now experience is that of the waking state, as opposed to sleep, delirium, and so on. Of what, when awake, am 'I' most clearly and accurately aware?

We shall try to answer this question without begging assumptions, but by a straightforward inquiry into the existing situation. When we approach the matter in this way, we see at once that it is by no means so simple as is usually supposed. When, let us say, a man strolls through his garden on a clear, quiet night, he assumes without question that he is aware of the skyward stars, the paths and perhaps seats in his vicinity, a passing train whose rumble he faintly hears and the fragrant flowers roundabout. To challenge this assumption is immediately to disclose its lack of foundation.

The stars present themselves as minute points of light which has travelled thousands of millions of miles before affecting his eyes, and in doing so this light has taken time, perhaps myriads of years, to reach him. In the meantime the stars, from which the light is supposed to have come originally, have been in rapid motion, with the result that they are now (when our subject sees their light) very far from the points in space whence the rays appear to him to come. Not only have the various stars different rates of motion, but the more distant ones have had a greater time in which to change position than have those nearer to the earth, so that they are no longer in the same spatial relationship to each other in which they appear to our observer.

Nor, indeed, have they ever been in the relative positions in which our observer imagines he sees them, for when the farther stars were in the direction from which their light now comes, the nearer stars had not yet reached their present, apparent place. And, by the time they had, the others had long since passed onward. As the directions of their light-rays are all our observer can claim to be aware of, it is evident that the configuration of the stars in his consciousness is not only now inaccurate, but was never accurate. Presumably the astronomer, with his data and his instruments, can work out their actual positions; in this case he may be said to know where they are, but in no remotely correct sense can he be said to be personally aware of them there.

With regard to the man in the garden, it will be maintained that at any rate he is better placed in respect of the paths, the train and the flowers. On the contrary, inasmuch as here his sources of information are greater in number and his conclusions equally far from actuality, he is even more unfortunately placed.

He believes, for example, that he is aware of that fragrant flower. But no flower possesses fragrance; in a vacuum a flower remains a flower just as before, but no odour exists. Certain tiny particles in the air are striking against the sensory end-organs in his nostrils; and the striking of these particles has a part in the real cause of his sensation; but of this he is not aware. He has either been told or has learned by automatic association to infer that the odour is connected with the flowers, and in a certain sense this is true. Nevertheless, an inference, even an automatically 'subconscious' one, is knowing but is not awareness. Thus it comes down to a claim that he infers something about the flowers and mistakes his inference for awareness. Our argument is not sophistry. On the contrary, we are merely stating carefully a case which ordinarily we prefer to hurry over from fear of the effort involved in thinking and speaking with accuracy.

To avoid a discussion of every detail, let us sum up the matter thus: it is the assumption of the plain man that he is conscious of the objects about him through his sense perceptions. This is the only means he has or claims to have at his disposal. Nevertheless, that he is conscious through them of anything corresponding to actuality, is manifestly mistaken; and if it be maintained that what he conceives to be a flower or a table or a chair has any embodied existence, then the hippogriffin also is present among us actually.

It is admitted that all sense objects are composed, in the first place, of molecules *in motion*; the molecules, again, consist of atoms, some of which are simple elements, like lead, while others are more complex unions of several elements "in chemical combination". Finally, the atoms themselves are only volumes of almost empty space whose dimensions are defined by the orbits of electrons revolving about a proton. So far as can now be ascertained, the last two entities,—electrons and protons, which are all that matter really is, are simply electrical charges of opposite kinds, or as modern physics defines them, a series of non-material events. They determine, by their electrical characteristics and by their movements, the entire external world.

Our senses, it is clear, give us a grossly inaccurate picture of the true situation. It is as if we were familiar with a narrow-bladed fan continually in rapid revolution. As we know, such a fan appears to our sight as a solid plate, nor can our senses make us aware of its actual shape. If it is revolving rapidly enough and if its blades are sufficiently alike in form, it can be struck with a clenched fist or felt over slowly by the fingers and will continue to yield all the touch sensations of a stationary disc. If it never comes to rest, the hallucination is constant.

Similarly with the ordinary objects of sense. The sidewalk we tread upon, the desk on which we write, are almost wholly empty space. The 'substance' in them consists of billions of ultra-tiny electric charges moving about at distances from each other which are immense when compared with their own sizes. To us the desk-top seems still and impenetrable because our senses are far too coarse to distinguish the little units composing it and so slow as to mistake their very rapid movements for rest. Our senses furnish us with a representation of what is not and never was, in other words, with gross hallucination. It becomes plain, then, that 'I' am not clearly and accurately aware of external reality, nor can 'I' be, with my present sense equipment; 'I''s consciousness in this respect is a series of illusions.

Says Eddington: "The external world of physics has thus" (*i.e.*, from the ordinary view-point) "become a world of shadows. In removing our illusions we have removed the substance, for indeed we have seen that substance is one of the greatest of our illusions . . . in the world of physics we watch a shadograph performance of the drama of familiar life. The shadow of my elbow rests upon the shadow table as the shadow ink flows over the shadow paper. It is all symbolic and as a symbol the physicist leaves it."[1]

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[1] *The Nature of the Physical World*, A. S. Eddington, N.Y., 1928.

We must not, of course, be confused upon the main issue because physics is here called symbolical. Physics *is* symbolical; and it is so because, in its most fundamental researches, it employs the aid of mathematics, and the language of mathematics is a symbolical language. Naturally this does not mean that the 'familiar' world is more real than the world of physics, nor does it mean that there is some sort of 'spiritual' world to which our senses give us an accurate and lazy access. The world the physicist is investigating is the only real, objective world there is; the knowledge he has achieved is both meagre and symbolical, but the point is that, so far as that knowledge reaches, it is *correctly* symbolical. All other knowledge of the real world which we possess consists of illusions based upon yet other illusions; it is not correctly, but distortedly, symbolic. Beneath the hallucinations of the senses there exists that actual world which is nowadays being discovered, no longer by the intuitions and guesses of mystics, but by the careful procedure of our most eminent scientists, among whom Professor Eddington has just been quoted.

It is true that certain modern physicists, apparently dismayed by the complete failure of their science to approach ultimate reality through the technique of physical measurement, seem to imply that sensations themselves give us a more trustworthy approach to reality than do measurements. Considerable emotional nonsense flows into the question through this entrance, but a small acquaintance with psychology is sufficient to seal it up once and for all. The following short passage indicates concisely what would seem to be the only possible psychological view-point:

"It is by this process, namely Perception, that all objects as such are built up in experience, both inanimate objects and animate ones, even including those objects which we call our own bodies. Subjectively they have no existence whatsoever except as various combinations of sensations; once these component sensory elements are taken away, nothing, no object, remains, a fact long since pointed out by 'idealistic' philosophers like Berkeley who wished from this to draw the (incorrect) conclusion that therefore no objects existed. It may be worth while, however, in passing, to mention that no such things as the actually *perceived* objects exist; the intervening processes of receptor stimulation, sensory activity, and correlation function are much too lengthy, indirect and complicated to permit of the percept having anything more than a rough approximation to an accurate representation of the object perceived. There is, in fact, just close enough an approximation to allow an adequate motor response to be made to the object; we may suppose that the main purpose of Perception, as developed biologically, was to serve this practical end, and even now Perception has little other value, as modern physics has demonstrated in its own astonishing but more accurate description of those same objects to which our Percepts refer."[1]

The intervening processes, referred to above, are eight in number. We have (1) the real object in the outer world, from which (2) various kinds of physical vibration-rates proceed. These vibration-rates affect (3) the tissues of the human body, within which there are parts, (4) the receptors, so modified as to be selectively influenced by special vibration-rates. The receptor-disturbance is then transmitted along (5) the afferent nerves, but this is by no means a simple carrying forward of the energy quanta aroused in the receptor. On the contrary, the receptor simply instigates the nerve to its own peculiar kind of activity; the nerve then successively 'explodes' along its length, the final explosion at the nerve termination being entirely different from the receptor activity which caused the initial explosion at the nerve's beginning. Next, certain still different activities are aroused in the (6) sensory centres or their synapses, as a result of which

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[1] *Integrative Psychology*, pp. 374, 375.

(7) connector nerves *from* the sensory centres are activated. And not until these connector nerves from the several affected sensory centres combine to cause synaptic phenomena in (8) the correlation centres, are the sensory elements integrated into a percept or subjectively experienced object.

It must be plain that there is very little resemblance indeed between item (1) of this series and item (8). Not only have quite different energy units taken part in different stages of the entire process, but, as we have noticed in discussing the Unit Response system, at points (6) and (8) the body itself has taken a highly important hand in the matter, such that these points represent existing intraorganic activities more greatly than they do the initial stimulating object in the exterior world. Altogether the final percept is as distorted a representation of the original object as can well be imagined.

But now we come to the most remarkable circumstance of all. This practically useful but intellectually ridiculous percept is now projected outward to the spatial point in the external world where the real object exists, and, ignorant of all the intervening distortions, we imagine that the percept is the object. We shall try to show later why this solemn projection is not only naïve but psychologically pathological. For the moment we are concerned only with the fact that our familiar world is indeed illusory.

That these illusions have a certain pragmatic significance is true, for they are the common property of all. Our faculty of speech has resulted both in their going unchallenged for so long a time and in much of the practical importance attaching to them. It is nearly impossible to break the hallucination of a single person ; when thousands and millions are in agreement, the difficulties are enormously increased. And they are further increased because these are not single items, but levels, of illusion due to levels of sensory distortion.

"Common sense" used to advance that our perceptions must be valid because they enabled us to deal practically with sense objects (the Western, pragmatic justification), and as regards ordinary motor responses our percepts do have a practical value; but the modern fact is that we only deal with objects significantly and in important instances by taking into consideration scientific findings which could never have been made through the use of the unaided senses. Another difficulty for the superficial pragmatic view-point resides in the evident difference, even with respect to *usefulness*, between the ability to predict the effect of gravitation from past experience and the ability to explain what gravitation is. The present scientific explanation of gravitation is indeed so subjective as to be almost meaningless (since it is deduced, not from the nature of the world, but from the peculiarities of man-made clocks and scales); but all credit must be given to science for its great achievement in showing our sense perceptions to be what they are—overwhelmingly deceptive.

Since they are illusions, they cannot serve our purpose of a starting-point for the expansion of consciousness, for surely we do not wish to expand our present hallucinations.

With all this dismissed, is there anything left? One thing, and only one, remains. There is a single object of the external world to which 'I' stand in a very special relationship, a relationship in which inheres the possibility of exemption from the disabilities pertaining to all the others.

This one object is that body to which in some close and intimate but for the moment unknown fashion, 'I' am attached. That such an association between two *separate* entities does exist, can scarcely be in question. Let it be granted that thoughts, emotions and sensations are the result of electrical movements in the body itself and automatically run their predetermined courses without the interference of any other factor. But in the earlier days when the term, apperception, was carried over into psychology by Herbart, the distinction was plainly made, in perception, between the perceiver and the object perceived, and, as Dr. Troland and many other modern psychologists have said, sentience can never actually reside in matter [1] and cannot, therefore, reside in the body. Nor can that same power of awareness which transforms other electrical movements into emotions and thoughts, ever be found in the body-machine, as we believe the behaviorists will eventually demonstrate. The three facts of sentiency, emotiency and cognitiency (if we may coin the comparable terms), all of which are summed up in the word awareness, are the evidence of the bare existence and further potentiality of 'I', as distinct from the body. On the other hand, it is clear that 'I''s present consciousness is based upon and intimately connected with the electro-chemical reactions of the body-mechanism, quite probably with its psychonic behaviour.

Certain unusual experiences give further confirmation to the view. Under the influence of special drugs, in cases of extreme peril as well as in fever and delirium, one is occasionally conscious of one's body as a thing distinct from oneself. Oneself is 'I', whose only feature at such times is a curiously dispassionate activity of observation; and it is important to notice that this observation is directed not toward outside occurrences but solely toward the body to which 'I' remain attached. We do not care to avail ourselves of whatever opportunities may be offered by these accidents, for they are abnormal conditions and we seek, above all, a thoroughly normal procedure. But they furnish additional evidence that there are two entirely different elements concerned.

The body is the real field of 'I''s consciousness when awake (also, no doubt, when asleep); the changes occurring in it are the basis of the sensations, feelings and thoughts which compose the content of consciousness.

The mechanical operations always going on in the body, and of course in its nervous system and cortex, have their causes, *indirectly*, in the phenomena of the external world, the technical, and actual, world of physics. Through habitual encounter certain reactions corresponding to words and inferences become established in the cerebral, and possibly laryngeal, parts of the body, which refer *directly* to these outside phenomena; and there arises that vast train of illusion noted above.

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[1] *The Mystery of Mind*, p. 233.

'I' never feel the heat of a stove; what 'I' am aware of is the changes in the thermal end-organs of my body's skin, and the rest is inaccurate inference. It is inaccurate, to begin with, because the 'heat' in the skin is projected upon the stove, and no such thing as a 'hot' stove ever existed. The object differs from others, not in that it possesses heat but in that a particular molecular motion is present in it of a higher rate than usual. In the second place the inference is false because there is no more heat in the nerves of the skin, nor in the subsequent movements they cause in the cerebral cortex, than there is in the stove itself.

Here we touch a confusion apparently as prevalent in scientific circles as it is on the street corner. In the body are only electro-chemical reactions, or, in the final analysis, electrical movements, as the behaviorists are correct in maintaining even as regards thought and language, much more so in respect of sensation. 'Heat' is a term relating to sentiency and, like all other psychological terms, refers back to 'I'; and 'I' am *not* the body. There is no sentiency in the body, no emotiency, no cognitiency, nor will the most refined examination ever reveal any, either in the body's receptivity or in its resulting reactions. These names refer to phenomena in which two distinct entities are involved, a vibrating machine and 'I', the interpreter of its movements in terms of consciousness. If the opposite view be accepted that consciousness is a phenomenon of the body, we must all eventually agree, if we are sane, with the proponents of an *irredeemable* automatism.

It must at once be said, however, that our own position admits of no such inflation as is likely to be claimed by those who delight in emphasizing their 'spiritual natures'. Usually their words refer only to certain of the more flamboyant emotions; but if it can now be said that 'I', who am not a body, am a spirit, the qualification must be immediately added that 'I' am a remarkably feeble spirit. Under the very best conditions all 'I' can do is to be partially aware; frequently, *e.g.*, in deep sleep, 'I' cannot do even so much, but cease, when in that state, for all practical purposes to exist at all. Sleeping and waking, however, depend at present upon the operations of the body-machine, and these operations, in turn, upon uncontrollable outside or inside events. So far as existence after death is concerned (which is the desideratum behind most of the 'spiritual' talk), how shall 'I' come off when the body has fallen into disintegration?

Says Sir Arthur Keith, "Beyond a doubt our thoughts, feelings, longings, aspirations and passions are manifestations of the brain. When it is narcotized, destroyed or dead, consciousness disappears."[1] If we remember that from our point of view the one, essential attribute of 'I' is consciousness, the conclusion is obvious.

It serves no purpose, of course, to deny the remote possibility that, if and when 'I' have succeeded in becoming an *active* being and in expanding my consciousness beyond its present scope, then perhaps 'I' shall be something more closely resembling the traditional concept of a 'soul'. Likewise it serves no purpose to affirm it. Let it be remembered that we have not as yet even established the method of procedure toward such ends, much less begun to put it into practice. We now return to the first part of that attempt.

From the standpoint of 'I' all the objects of sense are reducible to terms of sensation. All so-called knowledge is a mass of deductions and inferences from sensations

[1] "What I Believe", Sir Arthur Keith, *Forum*, 1930, p. 224.

and remains most questionable because 'I' am so ignorant of the conditioned instrument, the body, which is the direct channel of these sensations and through whose further agency the deductions are reached.

Sensations are the basic elements upon which all our consciousness rests and through them 'I' am partially conscious, insofar as the word is correctly used, not directly of the external objects which are supposed to cause these sensations, but really and in the first instance only of the body to which 'I' happen to be attached. Sensations deserve our first attention because they are less confusing than the other two forms of conscious content. Although we frequently project our sensations upon the objects which we believe to be their causes; —for example, we ordinarily consider colours to be more closely associated with objects than with the functioning of our nervous systems,—nevertheless, it is not difficult for us to realize the close association of our sensations with specific parts of our bodies. This is not the case with the other two elements. The obscure movements which 'I', interpret qualitatively as thoughts and emotions are at present almost unlocalizable in my body; that they are based upon the network of the motor system and upon general changes in the electrical field of the cortex, are at present inferential guesses, certainly not matters of awareness. Although 'I''s awareness in respect of sensation is almost as vague, at least it includes a realization of the entrance of the stimuli at a particular region of the body's surface.

Through sensation, first and foremost, 'I' become aware of my body, and infer further objects exterior to it. And the degree of my immediate or pure awareness of that body is the measure of the real consciousness 'I' have. This consciousness is passive, for am 'I' not the submissive onlooker at whatever occurs in my body of sufficient intensity to force itself upon my attention? That we have been so conditioned that the electrical movements underlying thought disturb us more often than do those underlying sensations, is no reason for imagining that 'I' control the thoughts.

How can 'I' become, in contradistinction to this state of affairs, active?

CHAPTER IX

A PSYCHOLOGICAL TECHNIQUE FOR PSYCHOLOGICAL SCIENCE[1]

UP to the present point we have been concerned with theoretical matters, with the attempt to deduce and to reach a logical conclusion about the nature of consciousness and the possible significance of the enigmatical expression 'I'. With this section we plunge into a different kind of endeavour, the practical attempt to construct a scientific method of real use to a psychology seriously engaged upon the solution of its most fundamental problem. Methodology is different from theory; but two considerations force us now to turn our attention to technique: first, the inept state of that which, if anything, can be denominated by the term 'I'; and second, the necessity of a new scientific tool, if our present theoretical guesses are to be confirmed by scientific experiment.

Regarding the first consideration, we are now in a position to reply definitely to the question that closed the preceding section. That question was: how can 'I' become active in contrast to actual passivity? It is always difficult to express simple activity in words, and it is doubly difficult with regard to so unaccustomed an activity as direct awareness. But we shall try.

To the extent to which through conscious effort 'I' succeed in being accurately aware of the current opera-

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[1] For the suggestion of the standpoint from which the second part of this book is written, the author acknowledges his profound obligation to M. Gurdjieff of the Gurdjieff Institute, although only the present section, dealing with a new technique, is an attempted reformulation of a part of his theory, according to the understanding (or more probably the misunderstanding) of the writer.

tions of my body. 'I' am psychologically active and not passive.

And to the same extent my normal consciousness is expanding, for the reason that if effort continues to be made, more and more operations must be attended to simultaneously; and eventually sensations, and further phenomena, now totally unregistered in consciousness, will have to be discerned and included.

Obviously the type of effort mentioned is one that is never ordinarily expended at all; in the usual course of events we attend to the phenomena of the body only when we believe, rightly or wrongly, that it is seriously or painfully threatened. Taking into account the number of seconds in each twenty-four hours, such occasions are extremely infrequent, and even when they occur, the attention wrung from us is involuntary and consequently doubly passive. In general the only account we can give of our own bodies is so theoretical as to be evidently guesswork, based upon anatomical hypotheses we have chanced to encounter.

Although the above point is so common and obvious that it will be immediately apparent, it is interesting to note that the most direct evidence of its validity has been furnished during the first experiment to be conducted with regard to the psychonic theory of consciousness. This experiment was conducted by the present writer in the psychological laboratories of Columbia University in 1928.[1]

The problem of the experiment was to obtain, under controlled laboratory conditions, high correspondences between synaptic and conscious phenomena. ". . . it seemed best to select from among the total synaptic phenomena the two items of synaptic delay and after-discharge; and then to see, by means of careful measurements, whether the variations in these two phenomena show marked correspondence with the fluctuations of consciousness, as introspectively reported on a quantitative scale."[1]

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[1] *An Experimental Study of the Psychonic Theory of Consciousness*, C. D. King, 1928, Master's Thesis, Psych. Library, Columbia University.

For this purpose the laboratory was darkened, and illuminated colours were exposed to the subjects of the experiment who responded to these stimuli upon a reaction key so designed that their reaction times (*i.e.*, the time elapsing between the exposure of the stimulus and the response of the subject) and their key times (*i.e.*, the time during which they kept the key depressed) could be measured in ·01 seconds. The reaction time was assumed to be a measure of the synaptic delay; the key time of the synaptic after-discharge. Following each response the subject marked upon a scale of 1–100 his introspective judgment as to the amount of consciousness evoked by the stimulus. There were ten subjects, each of whom responded 400 times, making 4,000 observations in all. The hypothesis to be tested was that there should be found significant, positive correlations between the time measurements and the quantitative judgments of the subjects.

As a matter of fact no such correlations were found, all of them being below ·5, which is the point above which significance begins, since ·5 represents only a 50–50 chance of relationship between the elements correlated. Nevertheless, on account of numerous chances of error inherent in the technique of the experiment and especially because of the failure of the technique of introspection employed in making the quantitative judgments, the experiment failed likewise to provide any objective disproof of the psychonic theory.

The concluding portion of the experimenter's report, however, is of interest. It runs as follows:

> "Summary:
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> The present experiment has provided neither proof nor disproof of the psychonic theory. . . .

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[1] *An Experimental Study*, etc., p. 26.

Findings as to the necessary technique to be employed in experiments upon the nature of human consciousness:

1. A more direct measure of synaptic changes than the time measures here used, should be obtained, if possible.

2. If (1) is not possible, then emotional rather than sensory stimuli should be used, since according to the psychonic theory motor responses are associated with emotion and motor responses are those that can now be most directly measured objectively.

3. The technique of introspection as at present understood by the average researcher and subject, is inadequate to the demands of this type of experiment. We must have (*a*) subjects capable of clear and detailed introspection and (*b*) subjects capable of employing a criterion for subjective estimate which is common to all the items of consciousness estimated.

4. A definite training in awareness, beginning with sensation, should be given each subject in these experiments; the results of such training should be objectively checked, to the end that we may properly have as much confidence in the reports of the subjects as in those of the instruments. Only thus will the correlations between judgments and instrument-readings be objectively significant."[1]

We call special attention to the last paragraph in the report just quoted. Quite evidently the subjects for the experiment were unable to report with any accuracy what took place when their bodies were subjected to simple visual stimuli in a quiet laboratory; and we have their own word for it that they were unable to report, not because of any defect in the ability to formulate what they experienced, but because of a deficiency in their own awareness. There seems no reason to doubt what the experimenter believed, that these subjects constituted a fair sample of the ordinary American population; if anything, they were above the average. It is plain that in any strict sense they were almost oblivious to the occurrences within their own bodies.

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[1] *An Experimental Study*, etc., pp. 74 ff.

Nevertheless, it will not be denied that by an effort 'I' can be aware of temperatures, muscular tensions, breathing movements and many other happenings in the body, towards which 'I' have ordinarily an attitude of unawareness. It is true, of course, that serious protests will be raised against such a proposal; and although we obviously cannot take up every variation of remonstrance, we will discuss four or five typical objections.

It may be said, for instance, that the sort of activity advocated is too vague, possibly imaginary and unreal. It is admittedly a difficult process to formulate with clarity, yet as to its being unreal, the action itself is quite the opposite. We urge once more that the fact of consciousness is the only thing of which we can speak as being surely real. The essence of bodily awareness is consciousness and its experience is, if anything, far more real than that of buying a ticket or putting on one's hat.

We will go further. The awareness we propose must have, as attributes of its reality, both definiteness and accuracy. Therefore, certainly at the beginning, it must be directed toward but one kind of sensation, *e.g.*, touch. Only when the ability of 'I' to deal to some extent with this single subdivision of sense has increased, should the effort be made to take up another category and thereafter to combine the two in an act of simultaneous awareness. This sort of procedure corresponds closely to the training of subjects which was suggested in the conclusions of the experiment on the Psychonic Theory, mentioned above; and to those who have the advantage of laboratory equipment and to whom the details of scientific technique appeal, the three preliminary objective checks there proposed are much to the point.

These checks are as follows:

"1. The subject can be tested as to his simultaneous awareness of different sensory impressions by giving him various stimuli under controlled conditions and requiring his report of what he has experienced.

2. Beginning with the establishment of thresholds for the various senses, his training in discrimination as to amount can be checked by the objective control of the stimuli.

3. His ability to discriminate should be carried to the point where his error as to amount, as subjectively felt and as objectively measured, is reduced to the ordinary error, sometimes called the error of the personnel, which is present, for example, in the dial-readings which occur in many physical experiments."[1]

It must be remembered, of course, that what the subject is reporting upon is not his guess concerning the intensity of the outside stimulation, but his knowledge concerning the resulting sensory intensities within his own body.

For our present purposes the order of application of these checks should be 2, 3, 1, and of course 3 would by no means represent the final standard of excellence to be sought, as is implied in the above quotation. For those who have no access to the kind of equipment needed for following out the above suggestions, it will be necessary to improvise checks directed towards similar ends. These checks will be less delicate in the control exercised, since they will suffer from the lack of precision instruments, but they should serve the main purpose equally well if the strict proviso be maintained that their objective rigour be in no degree relaxed. One of the chief ends of the procedure is, of course, to take the question of one's progress out of the region of subjective prejudice and to accustom the self-experimenter to the unusual, but essential, attitude of coming to objective conclusions regarding his own activities and especially regarding his own awareness.

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[1] *An Experimental Study*, etc., pp. 71, 72.

With regard to the *objects* toward which such awareness is to be directed, there can easily arise a somewhat subtle confusion. Let us attempt to resolve this at once. The *first* objects toward which awareness is directed should constitute the gross behaviour categories of posture, gesture, movement, and so on, and observations of these categories are made by means of the usual senses. Our evidence seems to indicate, however, that the sense of vision is best omitted in such observations and that the effort should be to accomplish the observation chiefly through the kinæsthetic and coenæsthetic senses. Thus an awareness of bodily posture should be sought through sensations of muscular tension and relaxation, internal and external pressures, equilibrium, etc., which sensations undoubtedly combine in the cerebrum to form a configuration in some fashion representing the actual configuration of the members of the body. In all these cases we are making observations of some situation or other *by means of* our sensations. The purpose of these preliminary observations is, of course, to accustom the experimenter to the objective fact of his own behaving body through his own indubitable experience.

Later, there will arise the problem of observing the *sensations themselves.* And here it becomes extremely necessary to guard against introspection. To be aware of a sensation is by no means simply to be aware that one is experiencing that sensation. Such awareness gives no information whatsoever, but only leads to phantasies concerning the sensation itself. To be aware of a sensation in any scientific sense is to be aware of what is actually occurring in the body when the sensation is present. We already have physiological reasons for supposing that what is occurring is the propagation of nervous impulses along nerve pathways within the body and the integration of these impulses in certain centres of the cerebrum. Such a view might conceivably turn out to be a wrong one, but in any case those phenomena, or *phenomena of a similar order*, must be consciously registered in order to fulfil our requirement of being aware of a sensation. All of which is plain enough when stressed; but it has frequently happened, indeed it seems to be the rule rather than the exception, that experimenters have been under the firm impression that they were observing a sensation when in fact they were merely introspecting it. Compared to such observation as we are now speaking of, introspection is a childishly simple and easy process; and the instance we have just mentioned brings out very clearly the complete distinction between introspection and self-observation.

Another objection to our proposition arises from the difficulty of the effort, for it is an extremely arduous one to continue for more than a few seconds, as must be the case with so novel and unused a faculty. Anyone prepared to experiment is quickly discouraged by the combination of strenuous labour and dubious results.

To this there is no reply except that of personal conviction by personal trial. After all, we have to do here with a symptom of that universal psychological laziness which, in our discussion of the Western world, we found at the root of many of our typical distortions. However, we are not engaged in a crusade to save the Western world; no one but 'I' myself is interested whether 'I' shall wake up from my present dream-like, only partially conscious state. He who is willing to sleep through life, with death the stern and inevitable finis writ upon his dream, will not find himself harassed by callers. In the slumber we call the waking state only predetermined, unavoidable events occur to mechanical bodies. But very many have been so well treated in the past by what, in view of their impotence, can only be pure chance, that they are lulled into complacency and are well content to drowse along in reliance upon the flighty goddess. Others, maybe luckily, have a less comfortable fate or rebel at approaching extinction.

Perhaps the reference was rather to self-satisfaction than to money when it was said (before Christianity became popular), "It is easier for a camel to pass through the eye of a needle than that a rich man should enter the Kingdom of Heaven."[1]

But now come the practical folk with their protest that the effort of awareness will interfere with the necessary tasks of daily life, will cause attention to wander and make them dangerously inefficient. This time the answer is very simple, because the objection is based on a misconception. The error involved is the introspective fallacy, against which it is easy to understand that practical people are in revolt. But they are mistaken when they suppose that there is anything introspective about simple awareness.

We cannot insist too strongly that simple, direct awareness of the most obvious physical behaviour of one's body is *not* introspection, is not, in fact, any kind of thought-process whatsoever, but differs at least as greatly from thought, emotion or sensation as these differ from each other. Conscious activity does presumably expend energy, but since it must be of a variety which does not manifest in physical, emotional or mental operations, such activities will not be interfered with; on the contrary these respective forces should be actually conserved. The practical results of awareness are just the things that practical people practically wish for.

Objection No. 4: granted the feasibility of increasing one's awareness of one's body to a certain degree, is progress possible beyond a relatively narrow limit? Is not the activity of 'I' perhaps variable, but nevertheless strictly bounded? These, of course, are the same question, differently phrased.

The reply is that physical awareness, for people like ourselves who possess so little of it, can be increased almost indefinitely; or, in other words, that the activity of 'I' is practically bounded only by the amount of effort put forth and by the complexities of the body. The body is very complex. On the other hand, the energy at the disposal of 'I' would seem to be inexhaustible, inasmuch as it appears to be *reinforced* by every act of awareness accomplished.

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[1] Book of Matthew, xix. 24.

There remains the question whether this energy, inexhaustible or not, will be expended. That will depend upon the intensity of the motive for its expenditure. The deep and final motive, of course, is nothing less than the universal human drive toward more and more consciousness; but this is buried at present rather far below the surface of ordinary waking life and, especially in the West, is covered by such a multiplicity of superficial and feverish distraction that it is little more than a vague, recurrent uneasiness in the case of the average man, an intermittent dissatisfaction with the general scheme of things which usually ends by being dismissed as futility. Although it is the enduring motive for the experiment we are discussing, it cannot at the moment be the consciously acknowledged one, if only because it is itself preponderantly unconscious.

As the situation is, the preliminary motive will be perhaps an intellectual curiosity regarding the hypothesis in general, which, however, will soon prove too weak to sustain an effort of the difficulty involved in physical awareness. This may or may not be followed by a somewhat stronger incentive for further effort. It will be recalled that, in discussing behaviorism as the doctrine of physiological determinism, we mentioned another technique which was alleged likewise to establish the mechanistic tenets advanced by the behaviorists. This alternative technique is the one now under consideration. Ordinarily it is not necessary to be aware of the operations of one's body for very long before the fact of its complete automatism is clearly perceived; and when the technique is carried further into the region of emotions and thoughts, the thesis is finally established without the possibility of doubt.

It is a very terrible thing that 'I' should be now but the possibility of awareness, attached to an automatic machine called a body, even if that body does go by a particular name and perform its series of antic gestures to be taken with an absurd solemnity by similarly gesturing machines. Nevertheless, the statement, so long as it remains in the realm of mere assertion, loses weight by the very fact of its gravity. It is so drastic as to be non-significant. Any mechanist, be he philosopher or psychologist, knows the impossibility of convincing people that they are automata, by any theoretical arguments, however sound. This is why behaviorism, in its most important implications, will probably never be more than superficially accepted by any large number of persons. Its conclusions are too important to be acknowledged when supported by only one-third, namely the mental, of the human being's functions.

But the same proposition, when established as the result of conscious experience, becomes much more than an intellectual theory; it is no longer in the region of knowledge alone, it is an indubitable realization of the fact. No longer is it possible to say, "Oh, yes, all this may be quite true theoretically, but after all, I cannot help feeling that there is something wrong about it." The components of realization are practical, emotional *and* intellectual, and thereafter none of these fields remains open for retirement from the disagreeable actuality. The *realization* that 'I' am bound to an automatic body; that this body is the sole instrument of my very existence and that it is unpredictably out of control, is a shock which may, and frequently does, release the energy necessary for the prosecution of the attempt to win more consciousness through the use of the body for that purpose. For one thing, there is the sole remaining hope that, if 'I' can only become well enough acquainted with my body through awareness of it, 'I' may at last be able to evolve the necessary technique for the control of that instrument on which my consciousness and therefore existence depend.

The considerations just mentioned are, of course, emotional; it is difficult to see how they could be anything else, since we are discussing the matter of incentive. However, we intend now to pass again to a discussion of further details of an intellectual rather than an emotional character, and in justice it must be stated that in doing so, we are eliding from the technique under treatment a very significant emotional portion. Originally this technique of self-observation was proposed by its own author as a fully rounded exercise for human beings, involving all their primary functions including the emotional as well as the intellectual. From the view-point of the present book, however, our interest in the technique is an interest in its use as a scientific tool of investigation, not as a means of personal salvation, and thus we can, and indeed must, omit from our discussion many items of emotional significance and emotional value that remain absolutely essential in the employment of self-observation for its original purpose. It would be manifestly unfair for any critic to judge of the validity of the technique in relation to its original purpose, on the basis of its presentation here in the partial sense of scientific tool. The point carefully noted, we can now continue.

Merely with the incentive mentioned above, the activity of 'I' becomes limited only by the structure of the body itself, and this limitation is rather theoretical than practical for people like ourselves. Active, conscious registration, or awareness, beginning with the body as a whole, its characteristic postures, gestures, tones of articulation, etc., can go on to awareness of sensations, then of the body's members and organs, at last to the individual cells composing its structure. *How* this can happen is a matter of theory. *That* it can happen is a matter for verification through controlled experiment. It must be remembered that consciousness is not a phenomenon of the nervous system or of the cerebral cortex or of its physiological psychons; consciousness is a psychological phenomenon, an event connected with 'I', who am not identical with, but only associated with, these physical structures. It seems likely that the association of 'I' is now primarily with the body's central nervous system; it may be possible through this part of the body to become aware of all the parts of the body, it may also be possible to come into direct, conscious association with more than the central nervous system.

From the view-point of the physiological psychologist all this may somewhat resemble an argument in a vacuum. But it must be remembered that we are insisting upon the absolutely necessary distinction between consciousness and conscious content, which this type of psychologist is the last to acknowledge. If that distinction be not admitted, then any position based upon the distinction must, it would seem, remain meaningless. The distinction, however, being admitted, it follows that part of the physical organism at present furnishes, not consciousness, but the content of consciousness. It would further seem true that, with the passive consciousness we now possess, that part of the body which may *most easily* do so, furnishes conscious content. This special part may now perhaps be found in the psychons of the sensory, correlation and motor centres, but there is nothing whatever to show that, for an *active* consciousness, organic parts less readily accessible to consciousness may not furnish further content.

Such an hypothesis at present is no more than an unconfirmed guess, but what is not a guess is the fact that this kind of awareness can actually be increased. For this fact we have the same sort of evidence that every other scientist accepts, the independent testimony of some hundreds of experimenters. These persons, to be sure for the most part amateurs, have been of various types, some credulous, some incredulous, some truly sceptical; but when we find a unanimity of agreement among such opposing types, surely we have as much pragmatic evidence as can well be available for any psychological statement. And indeed the evidence is not wholly amateur, for charts and graphs of the results exist that lend themselves to the statistical methods so professionally popular in psychology to-day.

However, we would go a step beyond the average psychologist and maintain that such confirmations, valuable as they may be for organized science, do not in themselves constitute real proof. It is true that, when complete, such data constitute intellectual proof, but that is only part of the requirement. Here we return to the distinction between knowledge and understanding, or between knowledge and realization. To be finally established for the individual, a truth must be realized, and this includes, besides the intellectual, an emotional element; it is also essential that this emotional component should not be to the prejudice of the mental element, but must reinforce it. Such realization can come to a human being only through experience; it can never come altogether from charts and graphs and exterior evidence, although these may well be also necessary. In this sense, just as conscious experience is the basic and unquestionable fact of all reality, so in the verification of any hypothesis, individual experience is the final element of proof, checked, re-checked and counter-checked against the multitude of inaccuracies and prejudices which abound whenever a man attempts to deal with himself or even with a theory which has intrigued his interest. Such checks must be in part furnished by others and can be so furnished only in part. It is no argument to say that this type of verification is difficult almost to the degree of impossibility; it remains the sole, valid means of true proof, and we do not make it easier (nor can we avoid it) by emphasizing its difficulty.

The last criticism upon which we shall be able to comment, and from our point of view the most serious, is this: that the suggested focusing of a man's attention upon his own body is highly introspective; is likely to make him an ill-adapted introvert, and will induce a disadvantageous degree of self-consciousness. If matters were left in their present posture, we could only agree with this objection and abandon the programme. But the statement of our position is not yet complete.

Indeed we are disposed to accept the challenge directly and to state that Self-consciousness is precisely the thing to be attained. But we wish to define Self-consciousness exactly. Whenever we use this term we shall mean that state of consciousness wherein 'I' am able to be aware, in detail and accurately, of all the current happenings in the body to which 'I' am attached. If such a condition is to be an aim, it will be convenient to have a name for it. And Self-consciousness seems to convey the meaning better than any other, in spite of the fact that it is commonly employed in a special and exactly opposite sense.

For as we know, the word usually connotes an awareness not of one's body, but of the surmised opinion of others in regard to one's body. When we say, "He was painfully (self-)conscious of the size of his hands," we mean quite the reverse; we mean that he was not conscious of their true size at all, but that he *imagined* them to be as disproportionately large as he suspected that someone else felt them to be. The sure cure for this kind of false self-consciousness is true self-consciousness.

There is also a more technical sense in which the term, self-consciousness, is used and which we must make it clear that we do not propose to employ. The word is sometimes used by psychologists to designate that part of one's experience with which one usually identifies oneself. Thus in the Unit Response system it is said that "there is a distinct class of persons . . . who in their subjective experience attach so great an unconscious significance to the Conative Perception that they come to *identify themselves* with this part-element of their consciousness. They feel that they are this Perception, and if asked seriously to say what is their most intimate self, here is where, after reflection, they will point. Thus for them the Conative Perception constitutes self-consciousness."[1] "There appears to exist a large class of persons for whom this special kind of consciousness (the psychonic energy arising in a correlation arc connecting two or more motor centre arcs) constitutes . . . self-consciousness. . . . We use self-consciousness here to mean that this large class of persons are accustomed to *identify themselves* with their consciousness of just the type of inter-emotional relationship that we have been discussing. In other words, they feel that *they are* the relationships of this type that arise in them."[2] "Furthermore, when the definite comparisons and formulations which may make the process introspective, are absent, we may find that vague type of consciousness which consists of an indefinite combination-awareness of several mental part-processes going forward at a given moment. Another large class of persons seem to identify themselves with this particular part-reaction, and for them the psychonic energy involved at these psychons will constitute self-consciousness."[3]

Here we have allusions to three types of persons who identify themselves with three different parts of their conscious content. The part so identified with, constitutes their self-consciousness. It is plain that we cannot use the term in this sense. In the first place, that with which the self-identification is made, is a part of conscious content, in the first instance a percept (a combination of sensations), in the second case a relation between emotions, and in the third a species of thought. In all instances known to the present writer, in which the term, self-consciousness, is used by psychologists, it refers to one or to all of these three categories. But, as we have said, these categories constitute not consciousness but its content, and consequently, since we cannot call conscious content consciousness, we cannot call part of such content self-consciousness. We must repeat that by self-consciousness we refer to a special and defined state of consciousness, namely, that state in which 'I' am able to be aware, in detail and accurately, of all the current happenings in the body to which 'I' am attached.

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[1] *Integrative Psychology*, p. 377.

[2] *Ibid.*, p. 384.

[3] *Ibid.*, p. 382.

In order to indicate the active element in self-consciousness we will call this kind of attempted awareness 'self-observation' or simply 'observation'; meaning by this my direct and self-initiated active awareness of, for example, the movements of my body's legs in walking. Nor is this proposal so novel as it may appear; the behaviorists have spoken of self-observation in this sense,[1] recommending its employment for investigations in which a technique based on the use of instruments is out of the question, and distinguishing it sharply from introspection in the traditional sense. The difference between our proposal and that of the behaviorists is that we expect eventually to carry the technique of self-observation beyond the simple overt elements, and to employ it not only beyond the range of instruments, but in conjunction with present and future precision apparatus, where possible.

Bertrand Russell has also noticed the matter of self-observation in a chapter so entitled of his book, *Philosophy*, already cited several times. Speaking of the assurance we feel of public facts because of concurrent testimony, he says, "In this respect, however, there is no *essential* difference between matters of external observation and matters of self-observation. Suppose, for example, that, for the first time in your life, you smell asafœtida. You say to yourself 'that is a most unpleasant smell'. Now unpleasantness is a matter of self-observation." You then (we condense) submit the same stimulus to other persons in order to confirm your observation. "Friends and children give verbal expression to their disgust. . . . All these facts lead you to state: 'The smell of asafœtida is unpleasant.' Although self-observation is involved, the result has the same kind of certainty, and the same kind of objective verification, as if it were one of the facts that form the empirical basis of physics." "It is by a number of self-observations that you know that the smell of asafœtida is unpleasant, and it is by a number of self-observations that you know that the sun is bright and warm. There is no essential difference between the two cases."[1] It is true that Mr. Russell continues to be somewhat vague as to the distinction between self-observation and introspection, as his succeeding remarks show. "According to what we have just been saying, all knowledge rests upon something which might, in a sense, be called 'introspection'. Nevertheless, there may be some distinction to be discovered. I think myself that the only distinction of importance is in the degree of correlation with events outside the body of the observer."[2] With this we must disagree sharply (unless such 'outside events' may be supposed to consist of confirmatory observations of the subject's own body, perhaps by precision instruments), but the preceding remarks are only the more applicable to true self-observation than they are to Mr. Russell's vaguely introspectionist self-observation.

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[1] *Inter alia: Theoret. Basis Human Behavior*, A. P. Weiss, p. 237.

To return now to the last objection, the only thing which will avert a deepening introversion and, *per contra*, make possible the achievement of a real Self-consciousness, is the maintenance on the part of the experimental worker of an attitude strictly in conformity with the realities of the situation.

We might refer here to the prominence given by the Wurzberg school, which flourished in Germany, to 'conscious attitudes'; or, as we should prefer to phrase it, 'psychological attitudes'. It is a well-known fact that people mostly see what they expect to see. In general it is true, and is confirmed by innumerable psychological experiments, that the particular receptive or active 'set' in any given case has an important influence upon what is actually, in the first instance perceived, or in the second accomplished. Now it is admittedly difficult to maintain an attitude of scientific detachment in any investigation of a personal nature, but more than ever is it important to hold strictly to this in the kind of work we are considering.

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[1] *Philosophy*, pp. 170, 171, 172. [2] *Ibid.*, pp. 172, 173.

As the question of attitude is so essential, we shall inquire into it more closely. It has intimately to do with the implications growing out of the fact that 'I' who am conscious, am really different from that of which 'I' am conscious, namely, my body.

The first point to be noticed results from this fact in conjunction with the further fact that the body which 'I' possess is a mechanism. The body can no more avoid its present internal electro-chemical phenomena (which 'I' interpret as thoughts and feelings) and its physical habits, all the outcome of past, automatic conditionings or inheritances, than water can escape its hydrogen and oxygen components and their joint behaviour. In what 'I' am aware of, therefore, there can reside no cause for pride or for shame, and certainly none for any sort of criticism, overt or implied. The animal which 'I' observe, namely my body, is as interesting and natural a specimen as any unknown creature from the Asian steppes which comes under scientific scrutiny for the first time.

Nor can the question of responsibility arise. 'I', who have always remained sound asleep, have assuredly had no part in the habitizing of the body, since 'I' have been entirely passive throughout the process. If there be any duty in the case of an emerging sleeper, it is not concerned with coming to decisions and taking action while yet wrapped in slumber. The only conceivable obligation in the circumstances is the unambiguous obligation to wake up, and even this appears to be a quite personal matter. At any rate there will be plenty of time for deeds when the eyes are really open and 'I' can see what

'I' am proposing to do. And since the way to wake up is simply to become more and more conscious, no tutorialness, no immediate self-improvement is either implied or to be looked for from the pure activity of awareness.

It should not be supposed that these statements are devised as a means of escape from codes of conduct or as a pass to adolescent hedonism. Present codes are mechanistic, in any event; every one of them refers to body-reactions of one sort or another. To 'I', in the early struggles to wake up, it is a matter of no immediate concern whose rules the body has been conditioned to follow. And as to easy pleasure, it is far more fatiguing to hold the detached, energetic position of 'I' than carelessly to identify oneself with the body and to dance to the tune of any particular 'morality'.

Still another implication is the absence of all analytical activity in pure awareness. This may seem strange at first glance, but if reform is a trap for the emotional, here is a trap for the intellectual. It is plain that observing a fact is one kind of activity, whereas searching out its train of cause and effect is a very different sort. The search for causes is naturally in its nature not bad, but from the point of view of our proposal it is inapplicable for two reasons. Firstly, the sleeper is still dreaming and his analysing is therefore only introspective rationalization. Secondly, analysis is a mental process, automatic and only passively conscious; and insofar as it is taking place, 'I' am not wholly engaged in purely active awareness.

All of this can be summed up as a matter of attitude. The only successful attitude for the normal expansion of consciousness is that of complete non-identification with the body-automaton. This non-identification takes place not because the body is either sinful or abhorrent, but because such an attitude is an essential element of all impartial and accurate observation. To say that this impersonal detachment, which is, nevertheless, the *sine qua non* of all scientific investigation, and this simple being-aware-of the current physical happenings in the body is difficult, is to put the matter mildly indeed. To be so aware for any appreciable length of time is perhaps only just within the range of possibility. But it must not be forgotten that that is the possibility of which we are speaking and that, furthermore, it is in accordance with the actual situation as between 'I' and my body. Since the very origin of our proposal is the distinction between 'I' and my body, we shall not progress far if, when making the actual attempt of awareness, we forget that 'I' am in fact not my body.

In this matter of non-identification we come to the very heart of the present proposal. On the possibility of a non-identification between 'I' and 'I''s body rests the possibility of '*I*''s existence as more than a self-deluded concept or semi-hysterical thought-process. On the same possibility must stand or fall our present proposal of a scientific technique for psychology that can serve as a foundation for a truly psychological psychology. It is useless to maintain that what we mean by psychological psychology is not fundamentally subjective, and it is useless to assert that when subjectivity gets out of hand, as has been the case with the introspectionists, psychology does not become merely philosophical. Objectivity also is as fundamental to any science as subjectivity is to the special science of psychology. But how can we obtain both? How is a *science* of *psychology* possible?

It is only possible if non-identification is possible, for we have seen in previous discussions that the essence of objective science is the separation of the observed from the observer. This is accomplished in the 'objective' schools of modern psychology by having the psychologist gather his observational data from his subjects, other human beings. We have already considered the advantages and disadvantages of this technique, the final obstacle to its use being that, although eventually even the basis of conscious content may be observable in the psychonic reactions of another human being, consciousness itself and subjective experience remain for ever beyond the possibility of checked investigation. Consequently this type of psychology can never become more than an extremely subtle physiology, from which it will be possible to draw inferences regarding psychological experiences only through unchecked, subjective report.

Upon the inadequacy of the modern, subjective schools of psychology we have commented frequently enough. In their case the final obstacle is uncheckability, the divine right of personal opinion. It is an unfortunate fact that even the most acute personal opinions can be mistaken. It is the function of science and its purpose to overcome this circumstance; if the final court of appeal is to be introspective opinion, no science of psychology is possible. Even in the case of introspective agreement, we still remain completely outside the field of science, for the agreements of scientists concern objective phenomena, they do not concern what may possibly be only the sharing of specified, subjective fancies. Still, unless one has some private prejudice in favour of physiology rather than philosophy, it is hard to see how there is much to choose between a physiological psychology and a philosophical one.

Non-identification with one's own body must be the answer to this puzzle, if any answer exist. In the ultimate subjectivity of 'I', the observer, is to be found the only subjectivity proper to psychology, its final foundation upon subjective experience. But not its foundation upon any experience you choose or upon the imagined experience of any person or any set of persons. The only *direct* experience possible, the direct experience of one's own body, is the only valid subjective basis for psychology. In the separation of 'I' by non-identification from the field of 'I''s observation, *i.e.*, from 'I''s body, and in the careful checking of the data there observed by 'I', are to be found the *two* elements of objectivity essential to any scientific procedure. He who observes must of necessity be completely and wholly subjective;

must be 'I'. But *what* he observes must be objective, as must also be the technique of observation employed. Surely these requirements are fully met only in the non-identified observation of one's own body; and it is most difficult to conceive how, except through the employment of such a technique, we can begin to establish a psychological psychology.

Is non-identification possible in this sense? We must not forget that it has often been denied that 'I' can observe myself; it is said that in the process of observing myself, 'I' inevitably change and that what it was intended to observe thus becomes different through the very act of observation. Among the examples of this that are offered, it is frequently asserted that if one attempts to observe one's happiness, the happiness immediately changes and soon disappears.

Leaving aside the contention that the 'I' here referred to, is perhaps not quite the 'I' of our proposal, we need only ask what is meant in the above argument by the term, myself. We see at once that the objection is not raised against our proposal, for by 'myself' is meant either a series of mental states (thoughts) or of emotional states. This is but another argument against introspection. It is obviously true that the subjective cannot non-identify with the subjective; for 'I' to attempt to observe 'I''s own subjective states is a contradiction in terms. On the contrary, we are suggesting that 'I' observe the body, for the body is not a subjective state but an objective fact. With regard to the five general categories of the body's behaviour, its postures, gestures, movements, facial expressions and tones of voice, there is the same possibility of detached observation and of checked results as exists when a chemist observes the reactions in a test tube. It is for exactly this reason that the body is to be taken as the field of 'I''s observation and not those already existing results of the passive interaction between 'I' and the body which *are* subjective thoughts and emotions. The eventual observation of 'thoughts' will not be the observation of the thoughts themselves, but of the physiological happenings that give rise to them, of whatever nature such happenings may turn out to be.

Upon non-identification rests also the possibility of self-observation without altering that which is being observed. The stock argument against self-observation (that what is being observed alters during and by reason of the observation) can be true only if the observation is a type of thought-process, if one part of the mental subdivision is looking at other parts. Since consciousness is not synonymous with thought, or with any other subdivision of conscious content, the pure activity of awareness is not one of these part-processes that observes other part-processes and in doing so takes itself completely for granted. To be sure, 'I' must always take itself for granted; but as 'I' was never part of the organic machine in the first place (for 'I' is conscious and there is no consciousness within the organism), therefore 'I''s recognition of its own separateness from the machine, *i.e.*, non-identification, has no effect of altering either the machine as a whole or any of its parts.

It is, in fact, only by a separated 'I' that this effect of alteration can be avoided, since otherwise it is inevitably a part-process that is engaged in the act of observation.

We shall scarcely doubt that non-identified observation of the body is peculiarly difficult or that it can be achieved except by the expenditure of considerable psychological effort. It is difficult because it is entirely unaccustomed and also because we have pampered ourselves emotionally to so great an extent that it seems hardly credible to us any longer that a man can view even his own body without egotistical prejudice or its reverse; it requires effort because it is psychologically active, in direct contrast to our unbroken psychological passivity. But indeed the fact that something is difficult does not always signify that it is impossible.

Again we have the assurance of many people that this type of self-observation is possible. Such unsupported assurances, of course, do not prove the point; we can only say that non-identification seems to be possible in varying degrees to those who attempt to practise it. Yet there appears no reason why the question should remain for ever a mystery. If a man can observe characteristics of his own bodily behaviour without greater emotional reaction than he exhibits toward similar characteristics of other men, and if these characteristics are of a kind that previous experiment has established to evoke in him emotional responses of a definite order under ordinary conditions, then at least considerable evidence of non-identification would seem to have been obtained. So far as we know, no experiment of this sort has ever been reported, but until such an experiment is made and carefully checked, and in view of what present evidence we have, there can be little *scientific* excuse for denying the possibility of non-identification on *à priori* grounds.

In consideration of the above discussion it would seem that here we have an answer to the objection that self-observation will transform the experimenter into an introvert. The mark of the introvert is his *identification* with various subjective states arising from his body-mechanism, or with those of his body's unperceived internal movements which underlie the more immature emotions. But *non-identification* with all parts of the body is one of the postulates of self-observation; you cannot become introverted if you are taking your own thoughts and emotions as objective phenomena occurring in an organism which is under scientific scrutiny, and especially if you are observing solely the ordinary physical symptoms of such states.

We have already suggested and the idea is implicit in our definition of Self-consciousness, that the prolonged continuance of self-observation is an aim. If not only are our bodies mechanical but if also we are unconscious of their detailed behaviour from moment to moment (as is the plain fact), then we are practically somnambulists. And if now we become, through conscious effort, actively aware of our bodies for a few seconds at a time, we are at least beginning to wake up though we remain preponderantly asleep. Only when we are able to be conscious of them in all respects and continuously, shall we have Self-consciousness, as defined; only then shall we be fully awake. Not to run away from the implications here involved, this means ultimately awareness of cells and inter-cellular phenomena within the body, for on these phenomena our sensations, emotions and thoughts are really based. Such awareness, however, is a final stage and it is not necessary to be discouraged at the beginning by the seeming remoteness of the goal. The performances of higher mathematicians are incomprehensible to the layman; but, despite much current superstition, it is entirely possible for the average person, starting out with arithmetic, to master the higher calculus, provided only that he be willing to expend the required effort.

It follows naturally that in the attempt to awaken there can be no set time or place for the effort. No one wishes to be awake in the ordinary sense only from eight a.m. to eight-fifteen and from ten p.m. to ten-thirty. 'I' have my body with me every minute, even during the night, and my goal is to be awake once and for all. Through effort, effort and more effort, 'I''s periods of alertness can be steadily increased. Anything is actual only to the extent that it acts, and by increased activity 'I' may eventually acquire sufficient actuality to maintain awareness of the body during the hours when it becomes quiescent for the night. A cautious inquirer will refrain from premature hopes concerning the state called death, but such a beginning would be at least in a desirable direction.

It is well we have mentioned the cautious inquirer. For in an undertaking whose results are so generally unknown it is most important to distinguish between what is now provable and what is only hypothesis, subject to confirmation; obviously the most rigidly sceptical approach is essential. To one to whom our proposal is novel this theory can only be an hypothesis, either plausible or the reverse. That 'I''s conscious effort to be aware of an objective, natural phenomenon, the body, is possible, must be agreed to, since it can be confirmed at once. But the further results of the activity must at the outset be conjectural, and the prosecution of the attempt to self-observe will become a long experiment in what is really the art as well as the science of psychology. Although most of our present psychology seems to be concerned, either mistakenly or intentionally, with phenomena that are fundamentally physiological, this experiment is truly psychological because it is primarily concerned with consciousness as such and physiology is involved in it only secondarily, because it happens that the sole phenomena of which 'I' can now be directly aware, are physiological in character.

It may well be an unwise experiment for those who cannot hold themselves down to the solid ground of scientific procedure. That self-observation is a real activity is empirically shown to be true by reason of the fact that it has certain definite results. One of these results consists in what are loosely called 'flashes of illumination'. These are no more than what the *Gestalt* psychologist calls 'insights' or 'seeing the configuration'; in fact, it is what we have previously called understanding as differentiated from knowledge. Such insights may occur to anyone on any subject. As a matter of evidence they occur more frequently than usual to those who are undertaking the experiment under discussion and they occur to them *while* they are self-observing; thus, in accordance with mere common sense, it is believed that the activity of self-observation numbers this among one of its effects. The point at issue is that such realizations must be disregarded temporarily in the interest of the experiment; and since they are but momentary flashes, their specific details must continue to lack our confidence until such time as they endure long enough to suggest their own methods of objective confirmation. The kind of person who cannot take this attitude should avoid the experiment, which is concerned not with the acquirement of understanding (though that may be one of its by-products) but with the expansion of consciousness as such. In the absence of the objective attitude, such a person will soon have his attention withdrawn from the experiment itself and eventually may get tangled up emotionally.

'I' will not be fully awake until 'I' am able to be conscious of thoughts and emotions in the same way as of ordinary muscular reactions. But it is to be remembered that the body-aspect of all these is really muscular, neural or psychonic and that their inclusion comes with the more comprehensive and subtler observations which are possible at a later stage.

We have defined the term, science, as involving four steps, the accumulation of data, the construction of hypotheses, the testing of these hypotheses empirically, the proof or disproof. The scientific method is orderly throughout and proceeds from the simple to the complex; there are many reasons why it must be employed in the practice of the theory under discussion, but the most decisive reason is the impossibility of doing otherwise.

It is so difficult to be aware of the body in the manner suggested, that the easiest and simplest spot is surely the place to begin. This point is the non-identified observation by 'I' of a single category of the body's behaviour, for example the habitual gestures it employs, or the postures it assumes, or the tones of voice proceeding from it when it is 'speaking'. The ability will develop later on to include several of such categories simultaneously and then to advance to the observation of more elusive forms of internal behaviour, after confidence and an objective standard of accuracy have been reached in the more easily verified varieties. Not everything can be done at once, nor can Greek be written while yet one is ignorant of its alphabet.

We have now briefly outlined a new technique for psychological research. It is true that there already exist many different techniques in this science; and it might seem that an extra one were superfluous, except that, as Professor Dewey points out, among them all " we have at present little or no controlled art of securing that redirection of behaviour which constitutes adequate perception or consciousness ".[1] And furthermore, of all the methods current in psychological investigation some are certainly scientific and others are as surely psychological. But those which are psychological can scarcely continue much longer to be called scientific, and the scientific ones, being really physiological, have just about reached the point where they must relinquish any further pretence of being psychological. We believe the technique here sketched to be the only extant proposal for psychology which is at the same time both scientific *and* psychological.

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[1] *Experience and Nature*, John Dewey, Chicago, 1926, p. 316.

CHAPTER X

THE LEGITIMACY OF THE SELF-OBSERVATIONAL TECHNIQUE

If the technique of self-observation, proposed in the preceding section, be actually both scientific and possible, as is alleged, it follows that the introduction of such a technique in modern psychology is extremely significant. At one stride we clear up both kinds of prevalent confusion, the philosophical and the physiological, and we set at once about the construction of the foundations of a purely *psychological* science.

It is just because such important consequences follow from an acquiescence in the theory of self-observation that we shall do well to examine the attributes of that technique yet more closely. That it is a scientific technique seems unarguable. So far as it is presently usable at all, it is wholly concerned with the collection of observed data; and that step is the first one made by any science. The further attribute of strict impartiality is likewise obviously scientific. That it is possible, at least to a considerable degree, is established by actual experience. Although this statement may be challenged, since no results of already completed experimentation have as yet been published in available sources, it must be plain that very little burden of proof lies upon the affirmative with regard to an assertion so readily provable by the objector himself. It is a further fact that the present writer has in his possession a mass of partially tabulated results referring to the use of this technique, derived from experiments covering a period of no less than two years, but these data, unfortunately, have not yet been reduced to presentable conclusions.

It is not along such lines that any serious objection to our acceptance of self-observation is to be foreseen. It may occur to us, however, that granting all the above, it is possible that this technique constitutes no more than a series of exercises in attention. That the attention is here directed toward organic phenomena that usually pass unnoticed, does not of course set self-observation off in essence from other exercises of attention. And if this be so, not only is there nothing particularly novel in self-observation, but certainly it would scarcely seem that it could constitute a very valuable technique, since experiments in attention have been popular in psychology before, during the days of the introspective schools, without any especially startling results. We must reassure ourselves, if possible, on this point with some degree of finality.

That self-observation has some relationship with attention appears plain at once. It is impossible to observe anything without undergoing that experience which, in subjective terms, we have always been accustomed to call 'focusing the attention'. That this technique involves attention, therefore, seems perfectly true; but is it on that account synonymous with the ordinary use of attention? And first of all, just what do we mean, psychologically, by the word 'attention'? Evidently, in order to resolve the present doubt as to whether self-observation is or is not merely a particular exercise in attention, we must come to a clear understanding of what both terms signify. Let us turn to existing psychologies, then, once more, and try to find out what 'attention' is.

As we have already discovered more than once, psychologists are prone to use the same terms in many different senses, depending upon their own persuasions and upon the schools to which they are attached; and the word 'attention' is no exception. It has been used, and is to-day used, in many different ways, as signifying everything from a 'faculty' of the 'mind' to a muscular movement. Moreover, in consulting the authorities, another point stands out at once; the interest of psychologists in attention has been rapidly waning in recent years. Whereas Titchener devoted an entire chapter to attention, and Munsterberg a whole section, Troland is content to mention the phenomenon briefly at three scattered points in his *Mystery of Mind*, Weiss mentions it more briefly still on only one page, and Köhler refers to it in but two widely separated sentences. In the formulation of *Integrative Psychology* the present writer said all that seemed necessary in a short paragraph. It is evident, however, that we must understand the various professional uses of the term in order to see whether self-observation is indeed identical, not with all of them (for that would be manifestly impossible), but with any one of them. Thus it will be necessary for us to consider the most important, although quite different, theories of attention now held in psychology. Such theories are very numerous and for our purposes it will be sufficient to notice only typical instances falling within the older introspectionist (still the most generally held), the pan-psychic, the behavioristic, the *Gestalt*, and the Integrative categories.

Interest in the subject of attention having largely evaporated, the theories of the average psychologist are probably almost as vague as the popular view, being but slightly more formalized and conspicuously lacking in scientific evidence. For this reason they are both adequately and fairly represented by the older introspectionist views, of which they are derivatives, only slightly altered to suit the necessities of the given psychologist. Of the older theories of attention those of Titchener and Munsterberg are excellent examples.

Titchener tells us that there exist two forms of attention, involuntary and voluntary, and that the conditions of occurrence of this phenomenon depend upon characteristics of the stimulus that may be described as intensity, quality, repetition, suddenness, movement, novelty and congruity with the content of consciousness. More carefully considered, there are really not two, but three forms of attention—primary (involuntary), determined by stimuli that produce a powerful effect upon the nervous system; secondary (voluntary), wherein the centre of consciousness is held by a perception or idea but is so held in the face of definite opposition; and derived primary, when such a perception has gained undisputed ascendancy over its rivals and the accompanying feeling of effort, present in secondary attention, lapses.

Further there are two levels of the stream of consciousness, such that objects at the crest or higher level are the objects of attention and those at the lower level are in comparative obscurity. The chief attribute of attention is clearness, but attention also intensifies its object. Titchener notices that there are both affective and sensory (kinæsthetic) elements in primary attention, due to the origin of attention by the sudden or startling type of stimulus resulting in the change in attitude of the animal or human. These factors persist in secondary attention likewise but may disappear when the attention becomes of the derived primary kind. Attention of some kind, he feels, is the normal state of consciousness. The range of attention usually embraces six simultaneous or successive impressions and its duration may extend to several hours.

As a physiological theory Titchener proposes that the clearness present at the crest of the attention wave (the upper level of consciousness) is due to phenomena of cortical facilitation and the obscurity at the lower level to cortical inhibition. "The attentive consciousness is conditioned upon the interplay of cortical facilitation and cortical inhibition." [1]

The preceding theory of Wundt was very similar to Titchener's, except that Wundt believed attention to be a faculty of a special group of cortical centres whose physiological function was inhibition. Thus his theory left the phenomena of facilitation out of account.

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[1] *A Text Book of Psychology*, E. B. Titchener, New York, 1912, p. 300.

Munsterberg's view is somewhat different. According to him, any content of consciousness can become the object of attention and attention itself is always felt as an inner activity. The only difference between voluntary and involuntary attention is that of motive, the general motive for all kinds of attention being that we turn our attention to any object in order to get more of it. In all full acts of attention he discovers four processes :

1. The content attended to becomes more vivid ;
2. Objects not attended to become less vivid ;
3. Mental and physical activities originate from the objects of attention ;
4. The resulting bodily adjustment produces kinæsthetic sensations.

These four processes he considers not as the result of attention, but as *being* the attention itself. Their interrelation determines why certain elements in consciousness are inhibited and others re-inforced. What determines which of the contents of consciousness shall become the objects of attention is the whole education of the subject ; and this theory concludes by implying that "every thought is, psychologically, a prolonged attention process".[1]

Munsterberg's work was performed especially during the period when psychology was changing from the philosophical to the physiological variety, and so his physiological theory holds a relatively more important place in his view of attention than did former ones. He attempted to make a compromise between the two view-points and in doing so evolved the idea of a psychophysical set. This was closely connected with his 'action theory', whereby the preparedness or unpreparedness for action in the motor centres of the organism became the regulating condition for re-inforcement or suppression in the whole field of sensations and ideas. Thus this motor set at any given moment would be the prime factor in determining which of the contents of consciousness should become the object of attention.

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[1] *Psychology, General and Applied*, H. Munsterberg, New York, 1914, p. 192.

Coming to more recent times we find the scattered consideration of attention mentioned above in Dr. Troland's pan-psychic theory. He observes that attention is that condition wherein the object occupies the centre of consciousness. Such an object is characterized by a high degree of clearness and all objects outside the centre may be graded as candidates for the centre, whereas all other objects, not only outside the centre of consciousness but even outside the consciousness itself, may be similarly graded. He diagrams the situation analogically by a series of concentric circles, with the focus of attention in the centre and the more obscure objects of consciousness in the outer margin. Beyond the limits of the outer, bounding circle lies the 'subconscious'. This diagram he proposes as a representation of the attentional structure of the mind.

He believes the form and operation of attention to be expressed physically in behaviour, and that attention is ultimately controlled by interest. Interest, in turn, is due to the whole biography of the subject, which is written in the resistances of the cortical synapses. The incoming nerve currents that pass through the cortex of the brain (due to lowered synaptic resistance) to determine behaviour also determine what shall be clearest in consciousness. A habit is defined as being due to lowered resistances in special cortical paths resulting from the repeated passage of nerve currents along them, and when this situation is intensified by a sensory reinforcement mechanism that Troland calls an 'encourager', the result is a 'complex'. Habits and complexes are the foundations of interests and thus are the dominant factors in controlling attention.

The modern behavioristic view, with its emphasis upon the motor activation of the muscles resulting in overt or implicit behaviour, has developed a so-called 'reponse' view of attention; but it seems plain that attention, like most other terms with a conscious reference, has almost no meaning at all for the behaviorist. Weiss typically dismisses the subject in two subordinate, qualifying clauses. Thus, "attention is regarded merely as a form of action which increases the effectiveness of the stimulating conditions to release responses";[1] and, "such terms as attention refer to movements, not to mental states".[2] We can only infer, since he states no more, that the 'actions' of the first quotation are those large or small movements resulting in the organism altering its posture so as to be more accessible to such stimuli as are here concerned with the attentional process.

The still more modern *Gestalt* view is even more vague. Köhler, speaking of a kind of blindness due to lesions in the optical centre of the brain, remarks by the way that "when he fixes his attention, the patient is able to grasp some small fraction of a line. . . ."[3] We are thus left entirely in the dark as to what he means by attention; presumably he uses it in the ordinary subjective sense, in regard to which he imagines everyone to be in agreement. Later, however, he becomes slightly more explicit, in considering what he calls 'the total field'. He asserts that a bipolar structure exists both in external experience and also between the experienced self and parts of experienced environment; the organization of the total field almost always possesses a bipolar character, the self being directed toward something else or away from it. He mentions "a particular attitude of so-called attention or interest which, as it were, is a direction in the field from the self to the (objects)".[4]

In contrast to this sort of nebulosity, the attentional theory of the Integrative system is simple and clear.

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[1] *A Theoretical Basis of Human Behavior*, p. 219.

[2] *Ibid.*

[3] *Gestalt Psychology*, W. Köhler, New York, 1929, p. 169.

[4] *Ibid.*, p. 324.

The Integrative psychologist, we remember, regards consciousness as a form of psychonic energy in the brain and not a simple efferent response, as do those who hold behavioristic opinions. It is said, in *Integrative Psychology* that "there is almost always a 'focus of attention' in mental activity; it is unstable and constantly in motion, as it were, and at some times there is a 'higher degree of attention' than at other times. The focus of Attention at any given moment will be in those centres where most impulse-groups are being integrated and where, consequently, the greatest amount of psychonic energy is being generated. Thus Attention may be focused within the sensory or motor systems as well as in the correlation system at different times; Attention itself is only the subjective name given to the phenomenon that occurs when a preponderant amount of psychonic energy is present in one locality rather than another within the organism. Attention may 'wander' and even disappear entirely when it happens that there is no especial concentration of psychonic energy at any particular locality."[1] It is necessary to add that the Integrative system has now gone further with its description of attention and at present feels able to provide a tentative neurological account of the factors governing such psychonic energy concentrations in the three subdivisions of the head brain. This description, of course, is entirely in physiological and neurological terms, involving among others the concepts of electrical induction of nerve impulses, neuronic re-inforcement mechanisms, the neuronic conditions of impulse discharge as between cell groups, and so on.

Probably we have now considered a sufficient number of the current psychological theories concerning the nature of attention. They fall very roughly into two classes, the philosophical and the physiological, perhaps the strongest examples of each being respectively Titchener's Introspective and Marston's Integrative theories.

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[1] *Integrative Psychology*, p. 404.

But scarcely any of these various theories seem alike at all; what can we make of the situation?

The first thing that appears evident is that, from a scientific point of view, we shall be quite safe in dismissing from serious consideration the Wundt, Titchener and Munsterberg hypotheses. It is plain that they consist primarily of private, introspective speculations about attention; and the uselessness of introspection as a scientific tool is especially apparent here, since these introspectionists reach quite different conclusions regarding those matters that are in doubt and agree only upon the most obvious details of attention, such as clearness. It is true that they each add some sort of physiological explanation, but it is also true that the physiological data at their disposal were so meagre, from the present-day standpoint, as to be essentially incorrect.

Dr. Troland's pan-psychic theory cannot be so hastily dismissed. And yet upon consideration it also appears to be primarily philosophic and speculative, and most of the speculations come directly from introspection. His neurological explanation concerning varying degrees of resistance in the cortical pathways would seem to be entirely inadequate to the modern state of neurology. The phenomena of nerve impulse behaviour in the cerebrum is certainly not simply a matter of the currents running hither and thither along a series of pathways partially or not at all blocked by synaptic resistance. The function of the synapse includes a great deal more than simple inhibition, as we have found, and although it is probable that the pan-psychic position is near the crux of the question in pointing to the synapses, the actual neurological account given is so incomplete as to be entirely misleading.

Nor is it clear why we should linger over the behavioristic account. If "attention refers to movements" and not to consciousness, then let us get rid of the word at once and not continue to use it in a mutilated and altogether unjustified way.

On the other hand, it is likely that we could linger over the *Gestalt* theory for a considerable time and that nothing very clear would emerge. The difficulty is that the *Gestalt* speculations seem to be just verbalisms piled upon verbalisms. If attention is to be considered as a direction in the total field from the self to or from the objects of consciousness, then we must know the answers to a number of questions. The total field of what? What is the self? What is consciousness? So far as we know there are no *Gestalt* answers to these questions, with the exception that the self is vaguely defined as some part of "the total field"[1] and, in their absence, there is little significance in an involved statement containing at least three unknown terms. The upshot seems only to be that when the self (or consciousness?) is directed towards certain objects, those objects are the objects of attention. So much we can surely accept, but we should not fail to reflect that the statement is a description of the phenomenon, not an explanation of it.

From our previous discussions it will be evident that we are already in partial agreement with the Integrative theory. If, as appears likely, psychonic energy is the basis of conscious content, then concentrations of psychonic energy must be the basis of the phenomena wherein certain items of conscious content appear more than usually clearly set off from the rest. Our objection to the Integrative view-point as to the physiological nature of consciousness has already been fully discussed, as has also our insistence upon the distinction between consciousness and conscious content. Our view of attention must in the last analysis come down to the concept of attention as an attribute of consciousness (not of the content of consciousness), and thus as an attribute of a state, not of a thing or things. We can easily agree, however, that attention, in the waking state of consciousness, is entirely determined by those concentrations of psychonic energy that at any moment are especially intense.

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[1] *Gestalt Psychology*, pp. 319 ff.

Where, then, are we left in relation to our original query—is self-observation merely an exercise in attention? Our first attempt to acquire a definition of attention as detailed and precise as our definition of self-observation, and then to compare the two, has collapsed because we find no clear definition of attention in modern psychology but rather a number of different and conflicting theories about it. Most of them are scarcely understandable. For instance, apart from the theories already mentioned we find the following in the *Encyclopædia Britannica*, under the sub-heading 'attention' in the article entitled 'Psychology': "On the side of the subject this relation (that of subject-object) implies what, for want of a better word, may be called *attention*, extending the denotation of this term so as to include even what we ordinarily call inattention."[1] If such an extension signifies anything to the author of the article in question, it certainly does not to the author of this book. Indeed, we are tempted to observe that, since 'attention' already means so many different things to psychologists, including even 'inattention' also, there can be no particular harm in letting it mean self-observation (as we have defined self-observation) too, and in returning an affirmative answer to our own question.

But perhaps we can do a little better than that. If we are to do so, however, we must first of all decide upon what we mean by attention, and since we can discover no generally accepted definition, we shall have to construct one ourselves. There is no especial reason, it would appear, why we must be very abstruse. Let us simply say that the phenomenon of attention occurs whenever a particular item or group of items of conscious content appears much more vividly or clearly than other items. This is surely the crux of the matter; furthermore, it is not only the ordinary view but is almost the only characteristic upon which professional psychologists are more or less agreed. Without doubt we must agree that, so far as we know, the phenomenon takes place, without exception, as a result of predetermined events, almost certainly neurological and quite certainly without the intervention of the subject who does the attending. Now our question becomes a good deal clearer; is this automatic succession of more vivid items of conscious content the same thing as the process of self-observation?

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[1] 'Psychology', James Ward, in *Ency. Brit.*, 11th ed., New York, 1910, p. 552.

The immediate answer would seem obvious. As attention is ordinarily used, it refers to a special case of the *passive* experience of the subject; self-observation, as defined, refers, on the other hand, to a peculiarly *active* operation on the part of the subject.

But, it will be asked, is not the observation of a test tube in a laboratory just as active a matter as the observation of one's own bodily phenomena? Superficially, of course, it is; but we have already tried to show that any such so-called activity (whether it be writing a poem or conducting a chemical experiment) is actually a purely automatic occurrence and that 'I' (the subject) is concerned in it *only* as the passive experiencer of what in fact automatically occurs. Among those things that occur, is the observation of the test tube, and this operation, though superficially active, is actually but part of a situation that predominantly and really is purely passive. In other words, from the view-point of the effector mechanisms of the body it is active; from the view-point of the real subject, 'I', it is not. But on the contrary, from the view-point of 'I' self-observation *is* just that unique activity of which 'I' is now capable.

It is very necessary here to avoid confusing the assertion just made with the distinction between 'involuntary' and 'voluntary' attention. From our present point of view (and from the point of view of 'I') such a distinction is entirely superficial, although likewise, on its own superficial level, appropriate. For, so far as concerns the ultimate experiencer, both 'voluntary' and 'involuntary' attention are equally passive. Their difference is really a difference only in the *type* of passivity evinced. 'Involuntary' attention depends primarily upon the kind of sensory stimulation encountered (usually described as 'intense'), while 'voluntary' attention includes, besides the sensory element, an additional segment of (almost always unintentional) effector mechanism 'set', which results in a special increment of kinæsthetic sensation bringing with it the illusion of active effort. In fact the 'effort' is not active at all; it is merely a passively experienced sense of obscure muscular strain. Self-observation, of course, involves no muscular strain whatsoever. The activity inherent in it is *purely* psychological. Thus the present distinction between self-observation and both 'voluntary' and 'involuntary' attention is of a more profound nature than the simply physiological distinction between the two ordinary kinds of attention.

Next, the element of non-identification, present in self-observation, is entirely lacking in ordinary attention. In the usual case of observation the matter consists of a passive experience, on the part of 'I', of an observation made by a subdivision of 'I's' body (the correlation psychons ?) upon some external object, such as a test tube. In the case of that kind of observation that is called mental introspection—insofar as it is observation and not speculation—the observation is made by one part of the correlation centres upon another part or parts. In the latter case 'I' remains altogether identified with the observing part of the correlation centres. But in self-observation 'I' must be *non-identified* with *all* parts of the body mechanism, and this includes, with the rest, *all* parts of the correlation system. It will be remembered that if any analysis or other thought process be included in the act, then the act is definitely not self-observation. Self-observation has been defined as pure awareness; it does not include any 'mental' element such as naïve objectors imagine to be the real basis for the supposed identification of 'I' with a part of the 'mind', namely with that part which they suppose is really performing the observation. There is, and there can practically be, a profound distinction between a pure awareness and an intellectual observation. Nor should it be supposed that a pure awareness falls by any means within the category of sensation, since sensation constitutes in fact one of the objects toward which the observational activity is directed.

The foregoing is closely connected with the general persuasion in modern psychology that attention is a special thought process or at the least a special attribute of thought processes. As has just been remarked, self-observation is not a thought process, and is thus distinct from attention if the latter be considered to be such a process. Since not all psychologists believe attention to be a thought process, however, the present distinction only holds in the case of those who express such a view.

We have previously seen that self-observation does not cause the ordinary attention to wander away from its special objects when that activity is entered upon. Thus it is possible to carry forward, for example, a complicated mathematical problem towards its solution, while simultaneously observing the posture of one's body. In so simple an example there may be little remarkable, since many people can solve a mathematical problem while playing the piano or wondering when their sore feet are going to improve. We recall that in Titchener's day the span of ordinary attention was found to average about six items, although these six might themselves each consist of item-groups, thus resulting in a total of single items as great as twenty-four or higher. Modern research scarcely notices this special problem, so let us accept tentatively that the ordinary attention span is actually the earlier ascertained six. The present argument is that when all six item-groups are being attended to—when the ordinary attention is *fully* occupied—it remains as possible as ever to carry forward self-observation, and that this activity does not then interfere in any way with the already fully extended ordinary attention. If the attention is actually already fully occupied, there obviously remains none over to be used for self-observation, which therefore cannot involve that sort of attention at all.

There would seem to be nothing miraculous in this. The fact is that ordinary attention, while possibly not a genuine thought-process, always involves some sort of thought during its occurrence. To attend to something while one's "thoughts wander elsewhere" constitutes at best a meagre form of attention, and in fact the more concentrated the attention, the more closely are the thoughts themselves concerned with the object of attention. But there is a great difference between paying attention to a bruised finger, mentally rehearsing the causes of the injury, mentally devising remedies, etc., and self-observing the finger, which is simply being aware of it as a part of one's body *without any* of the mental accompaniments of the first instance. Somatic phenomena can be the objects either of attention or of self-observation, but these are quite different activities. We only have self-observation when it does occur without mental accompaniment, and consequently self-observation is plainly different from attentional processes involving thought, since it must itself dispense with such additions whereas ordinary attention cannot dispense with them without diminishing. In this fact there is the definite implication, either that two quite different kinds of attention are concerned, or else that self-observation and attention are different phenomena.

It is further worth noticing here that out of the reports of many subjects, probably in the neighbourhood of two hundred, there has occurred *not a single exception* to the effect that in subjective experience the experience of self-observation is utterly different from that of ordinary attention. When pressed, this difference is described as a difference in the 'taste' or 'flavour' or 'feel' of the two experiences, obviously an inadequate, analogical and inaccurate expression but one which evidences the existence of a clear, subjective distinction between self-observation and attention though both be directed toward identical somatic phenomena. It seems highly probable that the vast majority of these witnesses were in fact suggested into expecting to find such a difference, and thus their testimony becomes of very slight value; but there remains the extremely significant fact that, in a series of experiments with this technique conducted by the writer, no less than six subjects spontaneously reported the same difference without being under any suggestion whatsoever. All the other subjects in these experiments, having previously been subject to the suggestion, are left out of account; but that 100 per cent of those uninfluenced should report exactly what the others reported, and furthermore without specific questioning on the part of the experimenter, would seem to dispose conclusively of the argument from suggestion.

In addition, self-observation is pre-eminently a non-habitual activity, whereas attention responds to modification through habit. For instance, it is not only easier to manipulate but it is also easier to attend to objects concerning which a habit has been formed, *e.g.*, mathematical symbols, musical instruments, bank statements, and so on. The usual phrase is that less attention is required, due to the habit or 'practice effect'. This is not the case with self-observation. Although the special object of such observation may remain a special category of bodily behaviour, *e.g.*, gesture, nevertheless the effort required to make such observations does not become less as the object becomes more familiar. This conclusion is made not only from personal experience and the subjective reports of experimental subjects, but appears from the graphed results of self-observational experiments when the usual 'end effects' of such experiments have been carefully taken into account. No 'practice effect' whatsoever appears in such results. The writer knows of no other type of experiment ever made in psychology wherein 'attention' is involved that does not exhibit a 'practice effect' if properly analysed. It is possible, of course, that the experiments were not carried on long enough to produce a noticeable 'practice effect'; but since they covered a period of nearly two years, it would seem that an effect so delayed in comparison with similar effects that become obvious in very much shorter periods, constitutes in itself no slight difference. The entire weight of the evidence, of course, points to the conclusion that no such effect exists. It is intended that the experimental results to which reference is here made, will presently be reduced to a final form and published where they can become a matter of record.

We have discovered, then, no less than five fundamental differences between self-observation and attention. We may list them as follows:

Self-observation.	*Attention.*
1. Non-identified	identified
2. Not thought process	thought process
3. Ordinary attention unaffected	attention affected by new object
4. Subjective experience different	subjective experience the same although objects may differ
5. No 'practice effect'	practice effect'

As a result it would appear that our original question must surely be answered in the negative. In view of these differences, not only impressive in number but also of fundamental character, self-observation cannot be considered as a special instance of attention exercise.

It appears to be a legitimate technique, not resembling attention or any other method of investigation now in use.

We now have an answer to our question, but before leaving this subject entirely it will be worth noting that, from our discussion, we have come across a significant attribute of the attentive process itself. It appears that there is not just one attention but at least two, and perhaps several. It will be recalled that we admitted, to begin with, that some kind of attention is perhaps involved in self-observation, just as in any kind of observation. When we finally reached a definition of attention—that attention occurs whenever a certain item or group of items of conscious content appears more clearly or vividly than other items—we could suspect more surely that attention must be involved, for in self-observation it is plain that certain behaviour categories appear much more clearly than is customary. But later we found that the process of ordinary attention, which may be focused, as an example, upon a mathematical problem, does not, at the time when self-observation is simultaneously used, suffer any diminution in its clarity. Can we then say that both these objects, *e.g.*, bodily posture and the mathematical problem, possess an equal clearness ? Since simultaneous introspection is definitely excluded from any instance of self-observation, it is difficult even to hazard a speculation, but what can be said is that the two attentions involved do not interfere with each other. So far as subsequent introspection goes, it seems as if the two objects (or even more when the ordinary attention is itself already divided) remained equally clear, or rather as if the degree of clarity of the self-observation, which of course varies in clearness in apparent proportion to the effort made, remained utterly unaffected by any ordinary attentive processes already in occurrence when the self-observation is made ; and vice versa. Since all these conclusions are simply the outcome of introspection, they may well be unimportant; and the subject offers an interesting field for future research so soon as an objective technique can be evolved for its investigation.

In the present outcome it is very doubtful whether the word 'attention' actually refers to anything like a special faculty or ability. When a special subjective effort is made, certain items of content do become clearer, and to such an occurrence the title of attention or attentive process is given. The significant point about the whole matter in relation to self-observation is essentially very different from the question as to the distinction between the self-observation itself and the attention (as we have defined attention) that is undoubtedly involved in it. The important point, so important that it cannot be over-emphasized, is this: that the ordinary attention we give to external objects, or even in introspection to interior mass effects, is without exception fundamentally passive, although it superficially appears, mainly due to accompanying kinæsthetic sensations, to be active. It is passive because the subject cannot in fact avoid experiencing such an attentive process; it is something that happens to him, that he finds occurring, that he finds himself experiencing. It has a neat neurological explanation, as we find in Integrative Psychology.

The summarized truth would appear to be this: that the ordinary view-point and the technical view-point concerning Attention, voluntary, involuntary, or both, is mistaken. Attention, as currently understood, is not real Attention at all; it is Tension. Nor is this statement a mere play upon words; when psychonic energy is concentrated in a predetermined fashion in specific regions of the brain, with the result that certain items of conscious content are emphasized in the passive experience of the passive experiencer, a very literal electrical tension occurs in such cerebral regions. An entirely different kind of tension also occurs, the kinæsthetic sensation of strain that accompanies the phenomenon. These tensions combine to produce an ingenious counterfeit of real Attention. They manufacture an illusion of activity that in fact is only a passive experience of strain or tension.

A real Attention, on the other hand, is in truth active, not superficially but profoundly active. It seems almost certain that this genuine Attention is never experienced by human beings as we know them; only its counterfeit occurs, and is supposed to be the real thing. Insofar as self-observation is possible, however, it involves a genuinely active Attention, deriving fundamentally from the activity, the active state, of 'I'. Since only in self-observation can 'I' be active at present, only in this technique can a real Attention be present. Even genuine Attention is not synonomous with self-observation; it is a process involved, however, in the self-observational technique. But under no circumstances should this Attention be confused with the false attention, really Tension, that nowadays goes under its counterpart's name for lack of a better substitute.

Self-observation is a part, and at present the only possible part, of an *active* psychological state of consciousness; the 'active' is justified because for the first time the pure subject 'I', pure because non-identified with any physiological process, sensory, mental or emotional, is itself the initiator of the activity. There can be no doubt also that self-observation, in so far as it concerns conscious content, must likewise possess, as to the attention involved, a neurological explanation. In the end the objection to non-identification always comes down to a denial that any such activity is possible. And the answer always comes down to the assertion that, once a sincere effort is made to carry it out, a very obvious pragmatic proof that it is possible, at least in some real degree, emerges. Let us leave it at that. There have existed innumerable proofs that men cannot fly, and these proofs were mathematically and, at the time, logically, correct. But men fly.

In the succeeding and final section we shall try to draw together the threads of the view-point we have been presenting and attempt to reach what can be, at best, only the provisional conclusions of our present semi-

CHAPTER XI

PROVISIONAL CONCLUSIONS

In considering the remarks to be embodied in this concluding chapter the reader may well be struck by a kind of approach to the subjects under discussion distinct from that hitherto employed. The truth is that we are about to indulge in a few speculations; instead of simple logic we shall essay to make use of the function of imagination, although we shall hope that imagination will continue to be restrained and governed by logic.

There are some who would believe our coming reflections to be out of place in a book dealing with science. These are, of course, the physiological psychologists (assuredly they are not such persons as we discover engaged in modern physics); and it is doubtful whether their objection is not simply to the use of uncontrolled imagination. With such an objection we can all agree. Flights of fancy, of uncontrolled imagination, are undesirable in any address to a reasonable audience, and to exactly the degree to which that audience is reasonable. They constitute, as is generally realized, a series of wish-fulfilling phantasies—and there remains a distinction between fairy tales and sciences. We should prefer to restrict the meaning of imagination to that of *controlled* imagination, controlled by what facts we as yet know and by the necessities of logic in regard to theoretical considerations; and in this guise it is hard to deny that imagination is, of all scientific tools, perhaps the most valuable. Up to the present we have used it sparingly. Let us now see what can be done by availing ourselves of its resources, while remembering that this tool never provides proof but only those items in respect of which proof subsequently becomes a desideratum. Let us remember that at present we are not looking for proof, but for something worth proving (or disproving).

As it is in regard to psychology that we propose to employ scientific imagination, our speculations will be governed by such conclusions as we have already reached. The subject to engage our attention will be *psychology*, not physiology. At once we will be accused by the physiologists (not the real ones but the psychological ones) of becoming mystical; perhaps we can endure this when we reflect that their interest is not in our branch of science at all, but in fact in quite another branch.

Experience, subjective experience, can be treated as scientifically as can entirely fictitious reflexes. And here we shall be accused by the subjectivists of not being nearly mystical enough, although it is to be doubted whether they will use the term, mystical. For both the 'objectivists' and the 'subjectivists' display a frenzied interest in the fringes of psychology, as if in this region *must* be found the secrets of the science. Nothing must be mentioned, it is insisted, that cannot be included under thinking, or feeling, or sensing, or gross movement. But why insist that everyone must investigate the fringes, when no one at all, apparently, has yet so much as realized that there is a shawl?

Cognitive, affective and sensori-motor phenomena are related to psychology, in the sense that all physiology is related to psychology, in the same sense that physiology supplies the content of consciousness, but never the consciousness, the faculty of awareness of that content, itself. We object to confining psychology to the task of investigating knee-jerks or leg movements; and we equally object to the naïve argument that the realm of thoughts and emotions is the primary field of psychology, when in fact these thoughts and emotions are of the very same fundamental category as the leg movements previously abandoned. Because a roulette wheel is brightly lacquered and a complicated game is played with it, it is not on that account any less a mere wheel than the circular appendages adorning an ox-cart.

It is true that cognitive, affective and sensori-motor phenomena are related to psychology just as content is related to consciousness; in a previous chapter we have guessed that perhaps one per cent of thought, feeling and sensation is psychological, and that that one per cent is precisely the (passively) conscious registration of thought, feeling and sensation. If at all costs we must avoid becoming mystical, let us at least stick to the psychological one per cent, so long as we wish to discuss psychology. This may prevent our getting tangled up, as objectivist Lashley does, in the attempt to unravel the rules and laws of subjectivist content, which are of course the rules and laws of the nervous system; it will also prevent our joining the phantasists in building a phantastic 'faculty psychology' upon literary verbalisms such as 'will', 'purpose', 'emotionality', which seem no more than wordy labels to cover our ignorance of actual neurological phenomena. They cover, in addition, our inadequate, because passive, registration of those phenomena by ourselves.

The details of the content of consciousness can more speedily be apprehended and the laws governing them solved, when we have some real knowledge regarding consciousness itself. For the time being let us confine ourselves to the central problem.

This brings us to a very general question, and to a very important one, namely, the question as to the present *type* of consciousness possessed by the so-called normal man. It is well-nigh impossible, in the modern literature of psychology, to find even a hint that the usual waking state, while it may be variable in its complex detail (*i.e.*, in its content, or in such matters as its logical clarity), is not a thing given, a fixed and unalterable condition of human life. Such a view-point seems tacitly assumed on all sides. We shall dare this dogma and see what happens.

Our first reflections will disclose to us at once that, when particular cases are considered, the waking state is always found to be itself abnormal. So far as we know, there are no exceptions of any kind. The psychoanalytic school has demonstrated beyond doubt that, if anyone is abnormal, then we are all in the same boat with him, even if we don't rock it quite as much as he does. Conclusively it has shown that the difference between the inmate of an asylum and his guardian is not one of kind, but one of degree only.

If this is so, a preliminary subject is immediately opened up, of which we must dispose before going on to our consideration of the ordinary type of consciousness enjoyed by us and by others. Our preliminary subject will be the question of normality and abnormality; what is to be our view-point as to the normal, as determined by the principles adduced in previous chapters? In the first place we must take stock of the most widespread definition of all, at least contemporarily—the psychoanalytic.

It is at once apparent that psychoanalysis has a definition of a so-called 'normal' that is based upon overt behaviour toward society and that is utterly at variance with its own psychological findings. It finds its 'complexes' as prevalent outside the asylum as inside, but it believes in shutting men up only when they menace society. Most people will doubtless find themselves in agreement with this practical view; but as a result of it the idea has spread that those confined are abnormal while those still at large cannot be said to have become definitely abnormal. Such a view, however, constitutes a simon-pure behavioristic definition of abnormality; from its own psychological standpoint psychoanalysis has never yet seen a normal man and we would venture the opinion that it never expects to.

But although psychoanalysis would thus probably endorse our view that the waking state is, empirically, always found to be an abnormal condition, we shall find it very difficult to accede to the theoretical position of psychoanalysis that leads to this agreement. It appears that the various psychoanalytic schools proceed to build up a concept of normality involving such words and ideas as 'libido', 'censor', 'repression', 'complex', and the like; any departure from the 'normal' thus derived becomes, for them, *ipso facto*, abnormal. But these terms, as we have already had occasion to point out, are really no more than subjective, mainly literary, expressions which, although they must have some vague reference to the actual state of affairs,—the same reference that a symbolical picture bears to the facts it is attempting to symbolize—most certainly do not constitute any scientific formulation at all. Furthermore, our own opinion is that the symbology of psychoanalysis is not only unscientific but extremely faulty; worse, it has, or has come to have, a certain moralistic flavour of its own. All of these defects obtrude plainly in the psychoanalytic definition of abnormality; it is a definition drawn by shrewd observers of empirical behaviour, but by observers who lack a scientific vocabulary and who, moreover, have made the numerous mistakes to which a loose, generalizing technique is always prone.

On this subject Dr. Marston says, "What his father did before him, and what his neighbours are now doing around him, constitutes the standard of normalcy. And this ridiculous method of evaluation is, to a considerable extent, sanctioned by the so-called 'social scientists' of to-day—evidently because psychology, so far, has failed to furnish any tangible description of a normal human being, save a statistical one. A bold psychiatrist, not so long ago, frankly stated (what) . . . I take . . . as an emphatic laying down of the rule that average behaviour of a given group constitutes a proper standard by which the normalcy of any member of the group may be scientifically measured. No principle for study and improvement of the individual could be more pernicious than this."[1]

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[1] *Emotions of Normal People*, p. 389.

Dr. Marston does not exaggerate. We are victims of the democratic absurdity that it is somehow right to run with the largest mob; and we have unthinkingly turned this nonsense into the dictum that the average man is the normal man. Therapeutically, it is probably true that the best course for the extraordinary man is first to become ordinary; he will then be nearer the normal than he was before. But this is an idea not germane to the present issue, and at all events there is a distinction between the average and the ordinary, another of those distinctions we like loosely to avoid.

In opposition to the current assumption, Dr. Marston proposes the conception of an organic norm. "We believe that there is a definite standard of normalcy inherent in the structure and effective functioning of each species of organism. Human beings normally have two legs; even if by some extreme chance one were fated to pass one's whole life on some remote island in company with four other human beings, of whom three were freaks possessing but one leg, we still believe that a sufficiently searching biologic investigation would eventually be able to establish which were the normal and which the abnormal men. In other words, the matter is entirely one of organic structure and functioning; it has nothing to do with the chance examples that happen to come under scrutiny. . . . Normality, as we think, has nothing whatever to do with the . . . average of a group or race of human beings, nor is abnormality related to the variations of different individuals from this average. The normal person is considered to possess all the natural . . . capacities which human beings should naturally have, functioning in a smooth and harmonious relationship . . . It may be startling to some that no one in the world is ever completely healthy in body or normal in mind and emotions. This, however, is undoubtedly the case."[1]

The organic concept of normalcy just cited, asserting that whatever causes waste or friction in the organism, constitutes abnormality, is a great advance on the previous assumption based upon averages. But whereas we must agree with the definition of the normal in these terms, we cannot quite take the next step and concur in the list of concrete human characteristics deduced by Dr. Marston as normal from the above definition. This is because we feel that there is something seriously, not just incidentally, wrong about the present condition of human consciousness, in that it is passive and inert instead of healthily active. A human body is not just an organism; it is an organic machine in conjunction with consciousness, at present in conjunction with a passive consciousness. And since we have no idea what possible changes in organic *function* an *active* consciousness might bring about, we cannot say that a theoretically frictionless organism such as we are becoming acquainted with in the neurology of passive human beings, would be normal.

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[1] *Integrative Psychology*, pp. 436, 437.

To take an illustration of what we mean, most authorities seem agreed that human infants pass through a stage during which autoerotism is perfectly natural for them, because this behaviour corresponds to their partially developed state at that time. On the other hand, it does not need to be argued that autoerotism in the adult human is a fairy symptom of undevelopment. In just the same way those mechanisms, emotional and otherwise, which may be supposed to work without waste in a passively conscious human being, might well, on that very account, be sources of friction to the same man when he became psychologically active and more developed. Surely it would be ill-founded to expect that the same mechanisms operating without friction in a caterpillar would, if rigidly maintained, operate frictionlessly in the subsequent butterfly.

This objection, namely, the prematurity of any particularized organic definition proposed to-day, takes its weight from the fact that even on the terms of the psychoanalytic-behavioristic definition now generally accepted, or on Dr. Marston's own view, quoted above, everyone is to a very large degree abnormal and therefore open to the suspicion of undevelopment. The natural presumption is that the process of development would be, organically—in accordance with what we know of all development—a process of interior change in the delicate mechanisms underlying the operations of emotion and perhaps thought. And at all events it is obvious that we cannot come to a valid conception of a norm through the observation of specimens, however numerous, that are uniformly abnormal; it is impossible to do so either from the direction of behaviour or from that of organic form. Dr. Marston's norms, while plausible and convincing, are really inferential norms based upon the observation of the structure and functioning of abnormal specimens; thus they suffer from the same fundamental objection that applies to the proposed norms of other psychological schools of thought. It would be, perhaps, just possible that the problem might be attacked successfully from the view-point of the function of human beings as such in the economy of the universe; but this would be a contemporarily hopeless task also, since we possess no present criteria of fully human functions. None, at any rate, that are immediately verifiable.

In these circumstances it would seem advisable to adopt a more rational vocabulary. If anyone is willing to take the trouble, let him average the characteristics of the general population and then let him call his result what it is—an average. As things are now, we have got the supposed average misnamed a 'normal', and have assumed that this (actually) abnormal average can only vary towards more abnormality.

Let us consider this last matter. There seems no *a priori* reason, once we emerge from the democratic fog, why *any* variation from the average must be more abnormal than the average. If we are correct that psychological passivity is, at our ages, abnormal, then a change to activity would be at least a step toward normalcy and at the same time a step away from the average. Psychological activity begins with an active and detailed awareness of the body, and we suspect that, if anything, it is our present unawareness that is unnatural, since, laziness apart, such unawareness possesses nothing but disadvantages.

Furthermore, psychological activity is a step away, not only from the average condition of the waking state, but from the waking state itself. Very little experience of the active awareness of which we speak, is necessary to convince one that, if self-consciousness be an attainable condition, it constitutes a conscious state differing as much from waking as waking does from sleeping. And quite apart from one's experience, this must be true logically. We all know how differently external reality appears when we are physically active from its appearance when we are physically run-down. The more profound change of balance from the psychologically passive to the psychologically active, which constitutes becoming self-conscious, must surely produce a much more striking transformation of our perception of the world. In other words, the *kind* or type of consciousness through which reality is perceived, must be very different, and hence the view of reality itself must be altered.

Such a change in type of consciousness may suggest what the mystics have been proclaiming throughout the ages, but if we reflect, we shall see that the likeness is only superficial. Oriental mystics are the only ones who possess anything like an accurate technique, and with their failure we have already dealt. Western mystic experiences, if we can credit their accounts, are accustomed to come without warning; occidental mystics are never able to say definitely (they merely hazard guesses) just what it was that produced the state. Their directions to others are so vague as to be mostly meaningless. In contradistinction to all this, it is obvious that a genuine self-consciousness must be always under the control of the experiencer, both as to entering and as to leaving it; it is the result of a perfectly definite activity directed toward perfectly definite organic phenomena; it is not vague, it is not haphazard, it is not of the nature of self-hypnotizing phantasy.

To the extent that 'I' am anything at all, 'I' am the same individual now whether asleep or awake. 'I' shall continue to be the same individual when self-conscious, but the world that 'I' perceive will almost surely be radically changed. And why abnormally? It is no use to pretend that in the waking state we perceive the world as it is, because it would be difficult to imagine persons (with the exception of sleeping or drugged ones) more greatly illusioned than are we.

We have already spoken at length, and we believe in logical terms rather than those of mysticism, about the trains of illusion that engulf our 'common sense' apprehension of the everyday world. We need not labour the point again, but we can profitably allude here to the present fashion of shrugging off the plain fact by ascribing it merely to the existence of 'levels of description'. Thus there is said to be the 'level of Mechanics', the 'Chemical level' and the 'atomic and electronic levels of Physics'. It would be much more accurate to refer to these as 'levels of descriptive illusion', since they simply represent either the extent to which our senses can probe reality or else the various further extents to which this can be accomplished by the employment of scientific theories and techniques. But it is a purely subjective matter that certain combinations of electron-proton groups appear to us as wood or ginger beer. What things *look like* has no further reality than that of appearance; in strict truth, it has no further reality than is to be attributed to the hallucinations of drug addicts. To imagine that the universe contains actual levels in accordance with the distortions supplied by our senses or by the merely contemporary achievements of science, is to admit likewise the legitimacy of those 'levels of description' that are the result of opium or any other sensory agent of distortion. The only reinforcement offered on behalf of our illusions seems to be that many of us are under the same ones; but since under sober investigation we are all abnormal, of what avail is that?

To return to a former analogy: could we communicate with one who had always slept, we should find that the external world entered his consciousness vaguely and indirectly. His dreams will be influenced by the heat or cold of his surroundings but he will not be in a position to attribute temperature changes to open windows or steam-filled radiators, whose very existence will be unimagined and incomprehensible to *him*. Thus the picture we should give him of the world as we know it quite possibly would strike his own so different experience as an insane one. But it is not insane; it is simply more complete, and to that extent more normal. In fact, the degree of completeness of consciousness, as distinguished sharply from happiness and similar criteria, is the one valid measure of normalcy that we possess.

If our mature sleeper should suddenly awaken, the spectacle confronting him might well be so overwhelming as to convince him of his own insanity and lead to his willing incarceration in one of the institutions of Sleeping-Land. It may be possible to wake up into Self-consciousness abnormally; there are physical drugs apparently having similar effects, and there are emotional and mental drugs.

There are also apparently quite a number of people in our present day who suffer intermittently from a feeling of unreality in relation to their ordinary experiences in the waking state. Naturally this is not a subject to discuss, so far as concerns oneself, with all comers; but it is surprising how many of one's friends, and even acquaintances, when in the mood to confide and feeling fairly secure that their confidences will be respected, admit to the feeling in question entirely spontaneously.

Are we to join the analysts and put this down to a lazy desire to escape the so-called responsibilities of life and return to the bliss of intra-uterine conditions? We might conceivably do so, either if this explanation meant anything or if it possessed the slightest verification. As we think, however, it is simply a series of subjective, now formalized guesses, the most plausible explanation to strike the original formulator in terms of his literary pseudo-science. Since then it has been hardened, crystallized; but it has no more real meaning to-day than on the morning it was invented. As for verification, where is it? Obviously there is none at all in the usual scientific sense; there is no scientific proof for any part of psychoanalytic theory, so far as we know. And naturally the client of psychoanalysis, coming to his treatments full of faith and hope, soon becomes thoroughly bamboozled by the particular doctrine he is being exposed to and is the first to cry, "Yea, master," as soon as the subjectively plausible theory is announced. Such 'proof' is scarcely worth the trouble of its enunciation.

On the other hand, what is against a straightforward explanation? If a drunken spectator at the cinema begins to suspect that it is only a picture he is viewing, we do not hasten to accuse him of desiring to escape from the picture; rather, we form the conclusion that, momentarily at least, he is sobering up. There is no occasion to adopt a different attitude when someone timidly confides that occasionally a familiar scene looks just a bit unreal. As a matter of plain fact, if we dare examine the question even a little, what we ordinarily see *is* unreal. Our ordinary experiences are not unreal, as experiences, but the pictures and concepts we entertain of the ordinary 'objects' around us are very unreal indeed. If at times a hazy realization of the situation forces itself upon us, it is certainly bootless to worry about our sanity. Even though their experiences are limited to momentary feelings of unreality, with nothing more real to take the place of the wavering hallucinations of everyday life, it remains a plausible guess that those who experience such moments are perhaps less sub-human than those who do not. At all events, it is not a matter for dark bugaboos or moralistic worries, but eminently one for psychological investigation rather than psychoanalytic therapeutics.

In regard to the commonly accepted view that the waking average can vary only in the direction of the abnormal, it is not too much to say that that position is really no more than an unconfirmed assumption and from other sources come suggestions of a different opinion. There are, for instance, the legends and traditions, some of them not at all indefinite, that are taken more seriously by those outside our own civilization but who are not on that account entire simpletons. Unfortunately we of the West have little access to original sources of this character and even less opportunity for any sort of controlled experiment along such lines. In the absence of these necessities, no conclusion can be justified, and the unusual opinions are mentioned only as opinions.

In addition to the above there is every great religion in the world. Their origins are lost now in obscurity and their propositions seem least understood to-day by their very professors. Also, following Frazer's somewhat old fashioned *Golden Bough*, there remain current certain anthropological doctrines regarding the origins of religions that are still looked upon with an astounding solemnity. Despite all this, it is not in any degree flouting either common sense or scientific curiosity to entertain the notion that these religions once contained a basis of real psychological truth.

He is an undisciplined or careless person who will take such claims as we find in religions at their face value. But the scientist is authorized to investigate any proposition, even so important a one as this, by those methods that at once preserve intellectual self-respect and offer the greatest possibility of success. The problems raised by the claims of religions do not fall within the province of anthropologists for the reason that such questions can never be answered by genetic guesses, no matter how plausible such hypotheses may appear to their originators. These questions fall rather into the field of psychology, where it is to be hoped they will be investigated under more severe scientific checks than have hitherto restrained the anthropologist imagination. They belong to psychology because it is plain that they do not deal with bodies alone; they deal, in fact, with consciousness.

If there is any meaning in the universal, though mostly unacknowledged, human preoccupation with conscious values, it is evident that the changes desiderated in all known religions are changes not in the details of our present consciousness, but in its character or type. Consciousness is *the* element that must change if we are to achieve a Nibbana, or a Kingdom of Heaven, or the more scientific superconsciousness of tradition and of secret human desire.

So long as matters remain *in statu quo*, so long as consciousness remains that which merely passively responds to organic phenomena within the body, to phenomena that themselves are the results of purely mechanical trains of causes in the external world, such a change in consciousness can eventuate only through the inauguration of startling physiological upheavals. We have no credible evidence that this has ever happened, and certainly it is plain that it does not happen to-day. The idea that the very disintegration of the organism is the requisite condition of an expanded or developed consciousness, is really too silly to deserve the serious consideration it receives from all too eminent quarters. If no way is devisable whereby 'I' can become active and initiate the development of my own consciousness, it would seem much better to consign all the hopes and aspirations of mankind to the limbo of past ignorance; there will be no Kingdom of Heaven for us.

On the other hand, no sane person will imagine that so great a metamorphosis is to be brought about by a mere mental curiosity concerning legends or by the childish expectation that God will confer the boon in return for credulous wishes. Therefore we are returned to the sober consideration of actuality.

For the sake of conciseness we may say that the body thinks, feels and senses because its automatic mechanisms supply the original factors for these reactions. Next we may say that 'I', the conscious factor which interprets the movements of physiology as thoughts, emotions and sensations, passively suffer what the body inevitably presents, or rather so much of it as is too strong to be avoided. Thus 'I' yield to the mechanistic body and to the extent that 'I' am conscious at all, a very meagre degree, live its marionette life. (Also we may infrequently remember that 'I' am scheduled to die its evidently disagreeable death.)

The situation is reversed if 'I' becomes active. How do we know this can be done? We try it and see, for that is the final proof beyond theory; just as an actual swim is the logical conclusion of a series of swimming lessons or lectures. All 'I' can do for the moment is actively to observe (in the sense of direct awareness) the quite involuntary operations of the body; anything other than this active awareness *must be* a body-reaction, for all the rest of human life is now included in mechanical thoughts, emotions and muscular or sense responses. But let me do so much and a start, at least, is made. What 'I' shall eventually become as a result of continuing and increasing this novel effort is another matter entirely; and only when we become it, can we do more than guess about it.

We can, however, agree with Professor Dewey that "to arrive at new truth and vision is to alter. The old self is put off and the new self is only forming, and the form it finally takes will depend upon the unforeseeable result of an adventure. No one discovers a new world without forsaking an old one; and no one discovers a new world who exacts guarantee in advance for what it shall be, or who puts the act of discovery under bonds with respect to what the new world shall do to him when it comes into vision."[1]

Nevertheless, it is an unavoidable temptation to attempt one more stride in our speculations, although it must be admitted that with respect to this further step we shall do well to employ a certain hesitation. We have seen how we may conclude with some assurance that there are, potentially, three distinctive states or types of human consciousness—sleeping, waking, self-consciousness. How, we may ask, if three do not exhaust the complete potentiality? What if there be a fourth? It is an amusing speculation (for assuredly it can be no more than that for us at present) that we may possess the potentiality of a conscious state again beyond self-consciousness. Such a state we might term Cosmic Consciousness, a concept to which we come by carrying forward logically the sequence, sleeping, waking, self-consciousness, of which we already have considerable assurance. The essence of these states seems to be, successively, a more complete awareness of external reality.

Examining the matter more closely, we understand that each of these states is closely related to the physiology of the human body. This is easily seen with regard to the first two types of consciousness, sleeping and waking, in which conditions the extero-receptors are functioning, respectively, lethargically and actively. Our best information at present is that this difference in functioning is due, not to some change initiated by the extero-receptors themselves, but to some subtle and as yet undetected change in the functioning of the higher brain centres, the psychons in the cerebral regions. What this change may be, we do not know, the researches on sleep being so far of a most fragmentary and preliminary nature, but it seems likely that it may be due to some kind of dissociation (probably electro-chemical) between the regions concerned with furnishing conscious content of the cognitive, affective and sensory varieties respectively. In sleep the close contact experienced in the waking state between these three regions appears to be partially, though not entirely, disrupted, with the result that impulse groups entering the sensory centres from the extero-receptor system either do not gain access to the correlation and motor centres at all or else do so in an incomplete and fragmentary manner. The subjective result is that 'I''s experience of the objective world, already indirect in the waking state, becomes in sleep distinctively more vague and confused. While still experiencing, as we say 'in dream', the content furnished by physiology, the sensory centres now furnish much less of this content and the motor (subjectively the affective) content is less than ever subject to that arrangement in logical sequence that is, in the waking state, the contribution of the correlation centres. This dissociative physiological change in the organism, this change that means the difference between dream and waking experience, is brought about entirely automatically, the current supposition being that it is due to the effect of accumulating fatigue products in the blood. 'I' has no control over either situation; 'I''s experiences are sleeping or waking ones in accordance with the physiological state of 'I's' organism.

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[1] *Experience and Nature*, John Dewey, Chicago, 1926, pp. 245, 246.

Ah, but it is said that by an 'act of will' 'I' can maintain the body in a waking state for a longer period than would have elapsed in the absence of 'I''s intervention? And just what is the nature of this 'act of will'? We believe that it has already been shown that it is no more than a Conative Percept, an entirely automatic occurrence, not initiated by 'I' at all, but of which 'I' unavoidably become passively aware. It is a simple illusion that 'I' has anything to do with the decision; sleeping or waking, 'I' is the passive experiencer of the content furnished by physiology.

The difference between waking experience and self-conscious experience would not appear to be due to physiological change. 'I' possess the same organism when waking and when self-conscious; moreover this organism is functioning in the same fashion. The great difference is that 'I' am now experiencing actively instead of passively, and this, if we are correct, is a purely psychological difference; no exterior observation of behaviour by a second person can possibly disclose which state of consciousness is present because external and internal behaviour, including even the psychonic, is identical in both cases. One state is *psychologically* passive and effortless, the other is *psychologically* active and effortful. The two kinds of subjective experience are profoundly distinct; and even the content is different because the content, although the same in origin, is differently viewed.

If we take the next tentative step, what difference can be assigned in the case of Cosmic Consciousness? We may hazard the guess that here there is again a physiological change; it should not be difficult, moreover, to guess its nature. In sleep the content-furnishing portion of the organism is considerably disrupted in its functioning, but in the waking state, while not so disrupted, it is still far from harmonious. Thoughts, emotions, sensations, percepts interrupt each other and supply a tremendous amount of mutual interference. Intellectual concentration is difficult only because thought-processes are intruded upon by emotions or entering sensations, as when the blatant clangour of the neighbour's radio refuses to permit the continuing composition of a treatise, or when the images aroused by an unpleasant encounter persistently attract the attention away from some purely mental problem. There can be little doubt that this is due to a misarrangement of impulse groups throughout the cerebral psychons.

There is a theory that, in the self-conscious state, the active psychological effort of 'I' has the effect of straightening out this tangle of impulse groups. It must be borne in mind, of course, that the effect in question is alleged to be a purely psychological one ; it is not in any sense a direct, physical effect, but is of the nature of the phenomenon of catalysis in chemistry. It may well be that there is a kind of reinforcement mechanism involved in the active, rather than the passive, registration of content ; if so, and if an active 'I' be a unified entity, then it might occur that harmonious psychonic phenomena would be reinforced and disharmonious connections gradually weakened. In favour of such a theory the writer so far has obtained evidences far too slight to be conclusive, but the theory strikes him as being a logically plausible, rather than a far-fetched one. It is in some such terms as the above that we must look for a physiological explanation of what apparently occurs in subjective experience.

What then would be the effect upon consciousness of an harmonious physiology in the content-furnishing portion of the organism ? It might well be the admission to the undisturbed sensory centres of subtle impulses from outside, now drowned out in the discordant clash of disharmonious impulse groups, that would result in a conscious relationship to cosmic phenomena in our vicinity and the forces behind them, of the same indirect character as our present conscious relationship to the local phenomena of the earth's surface in our vicinity. It is generally understood that our bodies are subject to very many influences, such for example as the recently discovered 'cosmic rays', that are imperceptible ; this is currently supposed to be due to our lack of the necessary receptor equipment for their reception, but it is surely as likely that it is due to the disharmonious functioning of a perfectly adequate receptor system. It is plain that if the expression, Cosmic Consciousness, means anything, it must signify this kind of development of our conscious relation to the inter-planetary, inter-solar phenomena of the universe.

It is, of course, the claim of the mystics that they have experienced such states of Cosmic Consciousness. Nor does it seem impossible that by means of a peculiarly lucky series of emotional disciplines the organism might be placed, momentarily, in an harmoniously functioning condition. It is probable that the same result might be achieved, with equal danger, by the consumption of physical drugs as well as emotional ones. In each case, one feels, the result will be faulty, haphazard and perilous. Neither method will appeal to those equipped with even a modicum of common sense.

But Cosmic Consciousness, of course, is what religion refers to as well as mysticism, and those who cry, 'Superstition!' most loudly, have noticeable superstitions of their own. An open-minded agnosticism regarding Cosmic Consciousness is not superstition; what is superstition is the wishful credulity that 'has faith' that one will slip into so advantageous a position as the result of an unavoidable death. Such a 'faith', whether it be held by a biologist, a physicist, or a churchwarden, is scarcely impressive, for nothing is more obvious than that the state of one's consciousness depends certainly and remorsely upon the organic condition of one's body, that a change in the latter means a certain change in the former, that the death of the latter means, so far as consciousness is concerned, extinction.

A functioning organism is an absolute necessity if 'I' is to have any conscious relationship with the objective world—and the objective world is the only world that exists. Without a body, there is no sleep, there is only extinction; without a body there is no waking experience, there is no self-consciousness, and assuredly there will be no Cosmic Consciousness, for each state necessitates not only a body, but a successively more perfectly functioning body. Neither in reason nor in controlled speculation is there any hint of the 'immaterial soul' of current superstition. An 'immaterial soul' must at best have immaterial phantasies, and the whole subject in such terms seems rather immaterial.

Naturally we are met on this subject, as on most, by the twin credulities, positive and negative; the negative credulity which, knowing nothing of the matter, insists that Cosmic Consciousness is an impossible dream, and the positive credulity which, also knowing nothing, announces with finality that Cosmic Consciousness is the inevitable destiny of all human beings. In both these cases we deal with closed minds.

Agnosticism regarding Cosmic Consciousness is entirely justified by the present state of our information on the subject; but it is plain that if it constitutes a real possibility for human beings, it is a possibility for living men and not for corpses. And it is equally plain that all questions dealing with the existence of God, the nature of Good and Evil (in other words, the subjects with which religion is concerned) can be successfully approached only from a state of Cosmic Consciousness that has the essential *information* at its disposal. This may account for the fact that current pronouncements on these subjects so closely resemble either day dreams or nightmares.

We might list the situation to which our speculations have brought us, as follows:

Actual and Potential States of Consciousness.

State.	*Physiology.*	*'I'.*
Sleep	disrupted, fragmentary	psychologically passive
Waking	disharmonious	psychologically passive
Self-consciousness	disharmonious	psychologically active
Cosmic Consciousness	harmonious	psychologically active

With such a listing it becomes clearer where the usual discussions regarding Cosmic Consciousness find shipwreck on the rocks, for the ordinary false (?) assumption is either that it is possible to skip the self-conscious state entirely and proceed directly from waking to Cosmic Consciousness or else that we now possess self-consciousness and are already upon the threshold of the next stage, which all too plainly is far from the case.

Our speculations have succeeded in drawing us into somewhat thin atmospheres, and it is possible that we will feel our feet to be dangling rather distantly from the solid ground of ascertained fact. Let us then return to earth. After all, we are now in the waking state, a condition which serious consideration cannot fail to disclose as unfavourable and but partially conscious.

We have proposed a theory to account for this fact; let us admit without hesitation that there remains the matter of presenting documented evidence, upon which the public acceptance of such a theory must be finally conditioned. The scientific checking of the necessary data, its collection and orderly arrangement constitute a lengthy and difficult task and one which, because it involves the co-operation of many persons, may never be accomplished. Fortunately the theory is open to private confirmation, a confirmation that will be just as lengthy and certainly more difficult than a public one, however, if only for the reason that it is always easier to place others under scientific check than to treat oneself in this way.

Disregarding temporarily the matter of objective proof, our theory, we would urge, throws light upon not a few obscure points. In its postulation of a half-way conscious state that is actual, it offers an explanation of the troublesome discrepancy between the very different worlds of sense and of modern physics. There can be no reasonable doubt that the latter world, although empty of all but measurements, is by far the more real, that our senses are the baited traps of illusion. But as physics stands to-day, in accepting its view of the universe, we have only exchanged our illusions for a highly complicated set of mathematical abstractions. Surely common sense is correct in insisting that the universe is something more than a mathematical orgy! Bertrand Russell has given us the key to this dilemma by pointing out that physics has become overwhelmingly mathematical and bids fair to become more so, not because we have much knowledge, but in fact because we can discover so very little that averages and ratios comprise our only certainties.[1]

Perhaps it is this fact also to which Professor Eddington refers when he calls physics 'symbolical'[2]; he certainly cannot mean that the actual world, the only real objective world that exists, more closely resembles the impressions derived from sensory illusion than it resembles, in its real nature, the formulæ of physics. But it is difficult to believe that the mechanical techniques of physics, marvellously as they have been elaborated, will ever remedy this so as to bring us into direct contact with the elements of the physical universe. Such a failure is even now to be clearly previsioned in the current apprehensive search by advanced physicists for 'dynamic' concepts wherewith to construct ultimate physical theories, for which unfortunately only statistical evidences, utterly inadequate to support these 'dynamic' concepts, are to be found.

But our own bodies are built of these elements in just the same way that the substances studied in the physical laboratory are constructed, and if we cannot come into direct contact with them within our own bodies through the perfection of a technique of direct awareness, it is hopeless to make the attempt elsewhere. Awareness, moreover, with its three factors, includes more than the mathematical subdivision against which the objection is really raised. By means of mathematics it will never be possible to do more than assemble various items of knowledge in convenient form or to infer further items from previous ones; but an active awareness, triply directed, would make it possible not only to *know* about the universe but also to *understand* it.

Seemingly impossible as it is to be consciously aware of an electron in one's body, it is surely out of the question to accomplish this when the whole sense organization of the body, together with much complicated external apparatus, intervene.

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[1] *Philosophy*, p. 293.

[2] *The Nature of the Physical World*, p. 209, and others.

Undoubtedly Dr. Troland had such considerations in mind when he wrote, "Physics tells us the structure of the universe in abstract. We must turn to psychology to find the substance which enters into this structure. And this substance must be of the nature of consciousness. . . . There is nothing else with which our thought can ever be directly acquainted. . . . We can know the world beyond us only insofar as it resembles the world which is within us."[1] Thus, in Dr. Troland's view, exactly to the degree to which we know the world within us, can we understand the objective world, the world without.

From a fuller exemplification of the above ideas Dr. Troland deduces the pan-psychic universe; and here we cannot follow him, for it seems to be as subjective a universe as that of Christian Science, and we do not believe that the external world, even in view of our present difficulty in comprehending its true nature, will ultimately prove reducible to the terms of an idealistic monism.

So far as physics is concerned, there is no denial that the components of the outer and inner worlds, the molecules, atoms, etc., are the same in character. It is because consciousness does not now descend below the level of gross sensation that entirely useless sensory terms are all that are now available for ultimate, non-mathematical, physical description. Our final understanding of both outer and inner worlds, which are really one (for after all our bodies are but special instances of objective reality), depends upon the victory of consciousness in probing beneath sensory illusions and emotional dreams to the underlying realities. If these realities are not atoms, or electrons, or 'events' (which Dr. Troland maintains are simply relationships), then at least they are something equally real and not the mere figments of logicians.

In the outcome we believe that our present choice between the bare skeleton of mathematical abstraction and the drunkenness of sensual illusion is certainly due to the fact that, although theoretically in contact with the elements of the universe, we have no actual consciousness of them.

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[1] *The Mystery of Mind*, p. 247.

Also inherent in the theory we have presented are some illuminating footnotes on psychoanalytic theory. There are, for example, clues as to the meaning of the variability of consciousness and the relation of dream life to waking life. It was Bertrand Russell again who, some years ago, showed that the technique which psychoanalysis applies to the interpretation of night dreams, can with equal validity be applied to waking experiences. This view advances the plausibility that the waking state is really a dream state (because a dream technique surprisingly enough is found valid for waking experience) and that waking life is thus an objective dream. On the premise of a potentially real but at present non-actualized 'I' such a theory finds its necessary basis, especially when we consider that the cause of non-actualization is exactly a semi-conscious condition in many ways resembling a true dream state. In this fashion, at the very least, we receive hints that go some way in retracing the steps that have led to current, crudely diagrammatic notions of the 'unconscious' and the 'subconscious'.

Perhaps more light is thrown by our theory upon Jung's celebrated distinction between introvert and extrovert than upon any other part of psychoanalytic doctrine. From our standpoint this distinction would not appear to be quite so fundamental as has been supposed, being merely the distinction, not between two elementary types of human beings, but rather between two opposite kinds of abnormality, both of which have, nevertheless, a common cure.

The introvert, we would suggest, is a man who is absorbed in subjective introspection of his emotions and thought-processes and thus is incapable of the objective realization that he is a unitary individual and that, as an individual, he possesses an organic mechanism, a body; to a greater or lesser extent he becomes identified with his own automatic emotional and mental processes. The best remedy for this state of affairs is not a series of rationalizations about his introspections suggested by a psychoanalyst, but the technique of self-observation whereby the introvert's attention is directed toward the ordinary, organic, physical phenomena of his body, and he learns to regard his experiences as objective, natural events. When this technique is later carried to the emotions and thoughts, they will present a very different aspect to the then non-identified observer.

Extroversion being a typical characteristic of western civilization, it is regarded by most of us as more normal than introversion, but this is almost certainly an error; it is not more normal, it is only more usual. The extrovert is one whose attention is so much directed toward what he imagines to be occurring outside his own body that, far more than forgetting his own selfhood, he reaches the same condition as the introvert and becomes almost unconscious of the fact that he possesses a body at all. The extrovert finds it most difficult to credit the fact of optical illusion and makes up the great mass of naïve realists who used to believe that the sun went round the earth because they could see it and now believe that the earth is round for the same reason. But one who is living outside his own body amidst much illusion is living in an unreal dream and extroversion is as much a subjective dream state as is introversion. Let the extrovert, however, practise awareness of his physical senses, through which all his so-called information concerning the outer world comes, and he will first of all re-establish his own identity and, secondly, become perhaps a little more sceptical about the inferences properly to be drawn from his sensations.

Most of us are extroverts in respect of sensation and introverts in respect of emotions and mental processes. We say, "I *am* happy" and "I *judge* thus and so".

What is true is that 'I' am dreamily aware of the mass-aspect of certain definite, though minute, physical occurrences in my body, which are occurring, moreover, quite apart from any ability of mine to control them.

It cannot too often be emphasized that what happens is this: certain physiological impulse-configurations, of which we become passively aware, take place in the higher brain centres. We become aware, however, not of the impulse-configurations themselves (they are far too minute and subtle for us), but of their total effect; and to this total effect we apply such labels as 'purpose', 'will', and so on. It is obvious that this sort of thing must be a rather hazy performance, and there can be little doubt that we frequently mistake similar configurations for identical ones and soon come also to develop a more or less private vocabulary referring to our own particular totalities of impulse-configurations. It is to be noticed that 'I' merely subsequently register these (momentarily) previous physiological happenings in their total effect as 'will' or 'desire' or whatever my private label may be; and I mistake my labelling of a mechanical, physical event for an *act* of my own which is conceived of as described by the label in question. This, of course, is an illusion at least as serious as those under which we suffer regarding the sense-objects of the external world.

These private labellings are responsible for much human misunderstanding. And the reason is plain, for not until 'I' am accurately aware of the specific impulse-configurations underlying my emotions, and able to formulate them in physical terms, can there be any possibility of knowing that my words and my neighbour's refer to the same or to different things. The failure to be so aware has affected disastrously the serious emotional activities, as in the arts, of our entire civilization by preventing the development of any objective æsthetic whatsoever. Artistic standards have been handed over to the opinions of cliques, whose memberships are merely more automatically drawn to this sort of opinion-giving, but no more capable of it, than is anyone else. Their 'standards' vary from time to time and even geographically; and any serious and impartial observer of the history of so-called art is astonished from the outset by a completeness of anarchy in which the most nonsensical standards are the most vehemently, and sometimes the most successfully, supported. It is our misfortune that we have no objective (non-emotional) definitions for states of feeling, definitions upon which the objective, rather than the privately prejudicial, arts could be founded. Dr. Marston, it is true, is even now endeavouring to remedy this, so far as knowledge goes, by proposing a scientific tabulation of the physiological integrations underlying the emotions; but his effort, even if entirely successful, will not add to our accurate, qualitative *understanding* of what our neighbours mean when they say they are sad or pensive. Such understanding can only come from a comparison of our own subjective experiences and the impulse-configurations beneath them, and from a subsequent comparison between the results of this kind of self-understanding on our own part and on the parts of our friends.

Our extroversion in regard to our sensations is an even more serious matter than our introversion regarding emotions and thoughts, and is also responsible, in a slightly different way, for the absurdity that our only means of conscious communication, language, is scarcely a means of communication at all. We attribute sensory qualities to the objects that occupy first place in the superficial trains of causes which we take as responsible for the respective sensations. We have already instanced the projection of heat upon a stove; let us now take the example of the attribution of the colour, green, to a book. This green, however, is not something real in itself; it is merely a verbal label, a mechanical language response conditioned to a particular, subjective, sensory experience. While it is true that, as children, we all learn to associate the *label*, green, with the same kind of coloured object, what reason is there for supposing that you and I connect our verbal greens *with the same quality of sensory experience?* To go into the physical laboratory and substitute a particular vibration-rate for the objects concerned does not eliminate the difficulty, for there will still be nothing to show that the psychological qualities of our respective experiences when confronted with the same vibration-rate, are the same, despite the fact that our labels will be in agreement.

Let us suppose, for example, that there are two boys, A and B. Their eyes are being subjected to the influence of a single vibration-rate which, in the case of A, results in a sensory experience of red, and in the case of B, in a sensory experience of green. *But both boys have been conditioned to report the sensation aroused, under the verbal label, green*; that is, they have both been taught to react to *whatever* sensation is aroused by this particular vibration-rate, with the verbal response 'green'. It is perfectly obvious, therefore, that they will agree verbally regarding the colour and that no question as to colour-blindness can arise. And indeed, we are not now postulating any colour-blindness; both A and B can distinguish all the colours of the spectrum clearly. But in spite of their abilities thus to *distinguish* the different colours, it is evident that their agreement regarding green (and perhaps all the others) is verbal only, for their actual sensations are entirely different qualitatively.

We now ask: what is there to show that anyone we wish may not be substituted for A, and anyone else we wish for B? In other words, where is the current technique whereby we may establish that the verbal label 'green' means to you, as a qualitative sensory experience, even approximately what it means to me? What possible scientific reason is there for supposing that our agreements amount to anything more than somewhat similar responses of the larynx?

Of course, it is not the first time that this uncomfortable fact about colour perception has been pointed out. Says Kilner, "The writer has for many years considered that each person . . . sees a coloured object differently to anyone else, but as a result of education everyone calls the colour by the same name."[1] Nevertheless, it is a fact which, in the experience of the present writer, is consistently left out of consideration whenever colour perception is discussed. And it is a fact most heartily to be recommended to those colour theorists whose hypotheses are founded upon or tested by the subjective evidence of perceivers.

That we can be conditioned to produce consistent verbal responses to the *same objects* is the reason for our partial, pragmatic ability to have dealings with each other regarding the objects, so far as that ability is a real one. It may be asked why, so long as this remains sufficient for all practical purposes, the point here raised matters. And, of course, if it is never necessary to do more than manipulate external objects, the point here raised does not matter; but when it becomes a question of communicating with other human-beings respecting the realities of human life and experience, it matters tremendously that we possess no reliable psychological standards for even so simple an experience as the colour-sensation, green. Nor are we likely to possess any until after our physical awareness is a great deal more subtle and accurate than it is now.

Professor Dewey points to the same conclusion when he says, "Consciousness is desultory and casual. Only when organic activity achieves a conscious plane shall we be adequately aware of what we are about. As long as our own fundamental psycho-physical attitudes in dealing with external things are subconscious, our conscious attention going only to the relations of external things, so long will our perception of the external situation be subject at its root to perversion and vitiation."[1] And in view of the present impossibility of a real agreement in such elemental instances as colour, our continual disagreements and misunderstandings become less to be wondered at in the far more complex regions of civic and international affairs.

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[1] *The Human Atmosphere*, W. J. Kilner, 1926, p. 142.

Referring to the matter of introversion and extroversion, we find the case well put by Dr. Marston: "The objectification of the experience, greenness, and its projection onto the stimulus . . . seem to be determined by a conventional habit of thought and speech which identifies a sensory stimulus with the sensation it evokes. The localization of the feeling of pleasantness within the (experiencing) subject and the severance of connection between this pleasantness and the stimulus which evoked it, seem equally due to conventional habits of speech and thought. Thoughts, emotions and feelings have been appropriated to and localized within the organism experiencing them, while sensations have been largely objectified as integral parts of the stimulus object. But of course as a matter of fact, sensations, thoughts and motations (feelings and emotions) are all equally phenomena of the subject organism, evoked by its interaction with an effective stimulus which in no sense possesses or includes these phenomena."[2] If we may substitute extroversion and introversion for the first and second "conventional habits of thought" in the above quotation, we have the case neatly summed up.

We have only to add that projection is an admittedly abnormal mechanism, since it misrepresents the true state of affairs, and that introversion and extroversion are both abnormal conditions. When they occur separately, no one denies their unhealthiness; and when they do not occur separately, they occur together, as Dr. Marston's entirely proper use of the word 'conventional' in this connection shows. And this combination of two abnormalities, which is the actual average, has come to be carelessly accepted as the 'normal'! It has happened the more easily perhaps, since we of the West possess the typically extrovert trait of remaining more than usually oblivious to the possibility of 'I'; and in the absence of 'I', the true experiencer, the abnormality of intro-extroversion is not readily noticeable.

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[1] *Experience and Nature*, p. 317.

[2] "An Experimental Study of the Psychonic Theory of Consciousness", W. M. Marston and C. D. King, *Psyche*, July 1929, pp. 54, 55.

The contributions of our theory are not, however, exhausted. It demonstrates, for example, wherein lies the fallacy, as we believe, of Hunter's SP–LR (sensory process–language response) definition of consciousness, mentioned in an earlier section. We recall that Hunter asks why LR is not consciousness and replies that this is because LR, in order to be rated as conscious, must have another LR conditioned to it in turn. Only in the irreversible SP–LR relationship, he says, do we have what the subjectivist calls consciousness. In other words, he admits that the formulation itself cannot be consciousness, for there is an evident distinction between a formulating process and that to which it refers. But, he says, it is the *relationship* between these two that is consciousness. And what is that relationship? Quite simply, it is formulability. We then have: formulability equals consciousness. But consciousness cannot equal formulability; whatever can be formulated (and formulability can be formulated), either as object or as process, is objective and is therefore within the content of consciousness, and consciousness itself, being a state or condition of the Ultimate Subjective, 'I', is no more formulable than is 'I'. Here again we meet the failure to distinguish between consciousness and its content; and the same is true of Lashley's descriptive definition of consciousness, which admittedly is constructed on the supposition that these two different things are the same.

On the other hand we must agree with the behaviorists that human thoughts, emotions and sensations, together with muscular responses, are determined, mechanistic, automatic; and we believe we have proposed a more final means for showing this to be true than has been suggested by the behaviorists. We must insist, however, that there remains a single human activity that can never become conditioned or mechanical, because there exists no external stimulus adequate to produce it; this is an *active* awareness directed successively toward the three, all-inclusive fields of *one's own* behaviour, in which there is no item at all that is not as fundamentally physical as the strictest behaviorist maintains.

At first glance, indeed, the above statement resembles a fallacy, for it is obvious that no inkling of this fourth possible activity will occur to a man unless he receives a pointer from outside the orbit of his ordinary, automatic functioning. If we will reflect a little, however, we must see that the existence of a visible signpost does not determine which road shall be taken; it merely places the choice definitely before the traveller. Here, of course, we have only an analogy, and one that ultimately breaks down; for, although it is not the signpost itself that determines the choice of the man at the crossroads, it *is* a series of psychonic phenomena, of which he is unaware, that forces his decision. His decision is a mental process and the factors governing mental processes are already present and operating within his organism.

But in the case of the activity of self-observation, there *are* no previous factors in him that can operate one way or the other to determine his choice, since self-observation is not a mental or an emotional or a sensory process. This activity is of a really different character; and if we avoid the mistake of confusing the perception or concept of the activity with its actual initiation, we see that it must, and can only be self-initiated in the strictest possible sense.

In another direction entirely we have included in the present section a brief discussion of the possibility of a validly scientific and at the same time religious outlook. Whatever may have been the state of affairs in the past, the modern world is not likely to be impressed by thundering Authoritarians. Our argument is that a religion which relies for its intellectual acceptance upon emotional appeals, is not a true religion at all, but is much closer to a superstition. To be rationally acceptable a religion must make use of a definite, scientific technique for the elucidation and careful checking of its propositions. Since these propositions relate ultimately to consciousness, some scientific, psychological technique must eventually be embraced by religion if this great department of human activity is to be placed upon a rational basis.

Nothing is more striking than the continual attempts, increasingly indulged in in our times by the most eminent of our scientists, to 'reconcile' Science and Religion; these are but thinly disguised efforts to find some grounds for the acceptance of religion by our reason, although it must be reluctantly admitted that most of these scientists appear to forget their scientific training completely when once they venture upon the task. But how can a method of procedure (science) and a body of doctrine (religion) be reconciled except by employing the one in demonstrating, or first of all in investigating, the other?

There are, in the way of this very obvious proposal, two serious barriers. First, there is the lack of recognition that a psychology concerned with the central problem of consciousness, and equally as scientific a psychology as those at present concerned with the fringes of the subject, is the essential scientific tool for the elucidation and for the proving of existing religious dogma or for the substitution of somewhat different, ascertained concepts of the same general category. And second, there is the ridiculous assent of liberal religionists to the investigation of their propositions, provided only that the investigation must be guaranteed in advance to substantiate their claims; otherwise they will repudiate the results of investigation. They desire to avail themselves of a support, if favourable, whose validity they are prepared to repudiate, if unfavourable. No science will permit itself to be placed in the position of this sort of cat's-paw; if the attitude is persisted in, it will only mean that the relatively sane portion of the human race will have to develop a valid religion of its own, while wholeheartedly permitting the rest to continue whatever superstitions they prefer. We should, however, rid ourselves of the error that the subject-matter of religion is taboo to reason; what is properly subject to scepticism is merely the definite pronouncements and dogmas, which repetitious religionists insist are unimpeachable. The possibly prejudicial and the merely traditional are not unimpeachable; but they are important, in this instance, and they should be investigated by the proper technique without fear or favour.

Finally, our theory presents a rational hypothesis for the inclusion in psychology of the enigmatical word, 'I'. We must agree with Dr. Troland that, so far as concerns present fact, 'I' is no more than a covering label; as an actuality, it is an empty word. But if we may do so without trespassing, we would allude to a famous and profoundly psychological saying: 'In the beginning was the word'[1]; just the word. Whatever cosmic meaning this may be presumed to possess, is beyond our recognition, but we have no doubt as to its psychological significance. It may be summed up in the term, potentiality. For the real comprises both the actual and the potential. There is such a thing as a real potentiality, and for the human being, *the word*, 'I', with all its implications, is that also. For the beginning of the conversion of this potentiality into actuality the psychological technique of self-observation appears to offer an adequate suggestion.

To be sure, in order to actualize 'I' it is necessary, through non-identification, to act as if '*I*' were already actualized; but this should not overwhelm those who are capable of reading with comprehension so recent a work as Vaihinger's *Philosophy of As If*.[1] It is possible, of course, that here we have the original meaning of that much-abused word, 'faith'; if so, we must notice that no element of belief is included. For experimental purposes to take the psychological attitude, 'as if', is simply to be engaged in a psychological experiment; it is not to be believing anything one way or the other.

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[1] John, Book of, i. 1.

After all, 'I' *is* psychology. Without 'I' the science of human psychology must inevitably become a subordinate branch of general physiology. It is true that our theory gives, in its definition of the Ultimate (the objective) Subjective, no final concept of the whole nature of 'I'. In the outcome it is evident that fully to comprehend the nature of 'I' is to understand oneself completely. And what is even more evident is the very important fact that such self-understanding must begin at the beginning; and that the beginning cannot be a totally premature, psychoanalytic introspection of thought-processes, but that it must be an active awareness, commencing with overt behaviour and proceeding to the entire behavioristic phenomena of one's own body, including the internal.

It seems probable that such a process of self-investigation can scarcely fail to be of distinct benefit to the individual undertaking it, for it is undeniable that a closer acquaintance with our own bodies is desirable. Also, there can be little doubt that there are few greater fallacies than the error which maintains that our bodies function more poorly when under a non-identified observation from within; evidence is easily obtained, in fact, for the opposite conclusion. But what is necessary, of course, is a *non-identified* observation, for a mere intellectual or emotional introspection can be guaranteed to unbalance the organism and end in an upset more or less severe in accordance with the degree of introspective intensification. The only safe, and the only successful attitude to take is one of experimental impartiality.

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[1] *The Philosophy of As If*, Hans Vaihinger.

Apparently, though there is evidence that this is appearance rather than reality, it is possible for any human being to conduct such self-experiment without further outside assistance, simply by virtue of his membership of the species, simply because human beings are actually of such a pattern that activity of this character is possible for them and beneficial to them. But there is a final word of warning. No experiment will yield valid results unless it is strictly controlled by the most objectively scientific checks. There must be no prejudices, positive or negative; and a real attitude of non-identification is absolutely essential.

On the other hand, laboratories do not make scientists, but vice versa. 'I' possess a fully equipped and ever-present laboratory; it is the body to which 'I' am attached. Perhaps the possibility of experiment in that laboratory is the real reason why 'I' have a body?

'I' *can* wake up if 'I' *will*.

APPENDIX

POINTS OF AGREEMENT AND DISAGREEMENT WITH CURRENT THEORIES

AGREEMENT

Subjectivism.	*Behaviorism.*	*Pan-psychism.*	*Psychonic Theory.*
Consciousness is a reality.	Introspection a subjective method unqualified for use in scientific investigation. 'Purpose' an inadmissible concept in present psychology. Man a response mechanism; his three forms of behaviour automatic and determined. Objective observation of physical behaviour essential for a scientific psychology. Self-observation a scientific technique.	'I' actually an empty word. External reality can only be finally known in conscious terms. We can understand the outer world only to the extent that we understand the inner. Psychology is not a 'physical' science.	Present form of consciousness probably closely connected with psychonic behaviour. Man a transforming station for the energies of environment; heredity probably the governing factor in man's automatism.

DISAGREEMENT

Subjectivism.	*Behaviorism.*	*Pan-psychism.*	*Psychonic Theory.*
Introspection not a scientific tool. 'Purpose' inadmissible in the description of present human behaviour.	Consciousness is a reality. Observation of others only a preliminary makeshift. Consciousness and conscious content must be carefully distinguished in any scientific terminology. Psychology is not a 'physical' science.	External reality not reducible to an idealistic monism. *Potentially* 'I' is more than a word. Consciousness and conscious content distinguished. Consciousness not a configuration of content, but a state or condition.	Psychology not a 'physical' science. Consciousness and content distinguished. 'I' is not a sum of psychons (things). Consciousness not a thing, a form of matter in motion, or physiological behaviour, but a state or condition.

search and carried beyond the sensory ele-

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